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ABSTRACT

This manual was designed to help incorporate the seven Dietary Guidelines for Americans, published by the U.S. Departments of Agriculture and Health and Human Services, into a health or physical education curriculum and to make nutrition education contemporary, interesting, and relevant at either the junior or senior high school level. The publication consists of 9 lessons which include reproducible self-tests and activity masters. Lesson 1 is an overview of the Dietary Guidelines. Lessons 2 through 8 each focus on one of the 7 Guidelines. In each lesson, learning activities help students to recognize scientific evidence supporting the Dietary Guidelines; to evaluate their own food behavior or knowledge in relation to the Guideline; and to explore practical ways to meet the Guideline. Lesson 9 provides a summary which reinforces previous learning and helps students incorporate the guidelines into a plan of action for good health. Learning strategies are designed to help motivate and increase teens' understanding and use of the Dietary Guidelines, while hands-on activities encourage critical thinking and problem solving. Some activities are keyed for integration with other subject areas--science, social studies/current issues, language arts, art, and mathematics. (LL)

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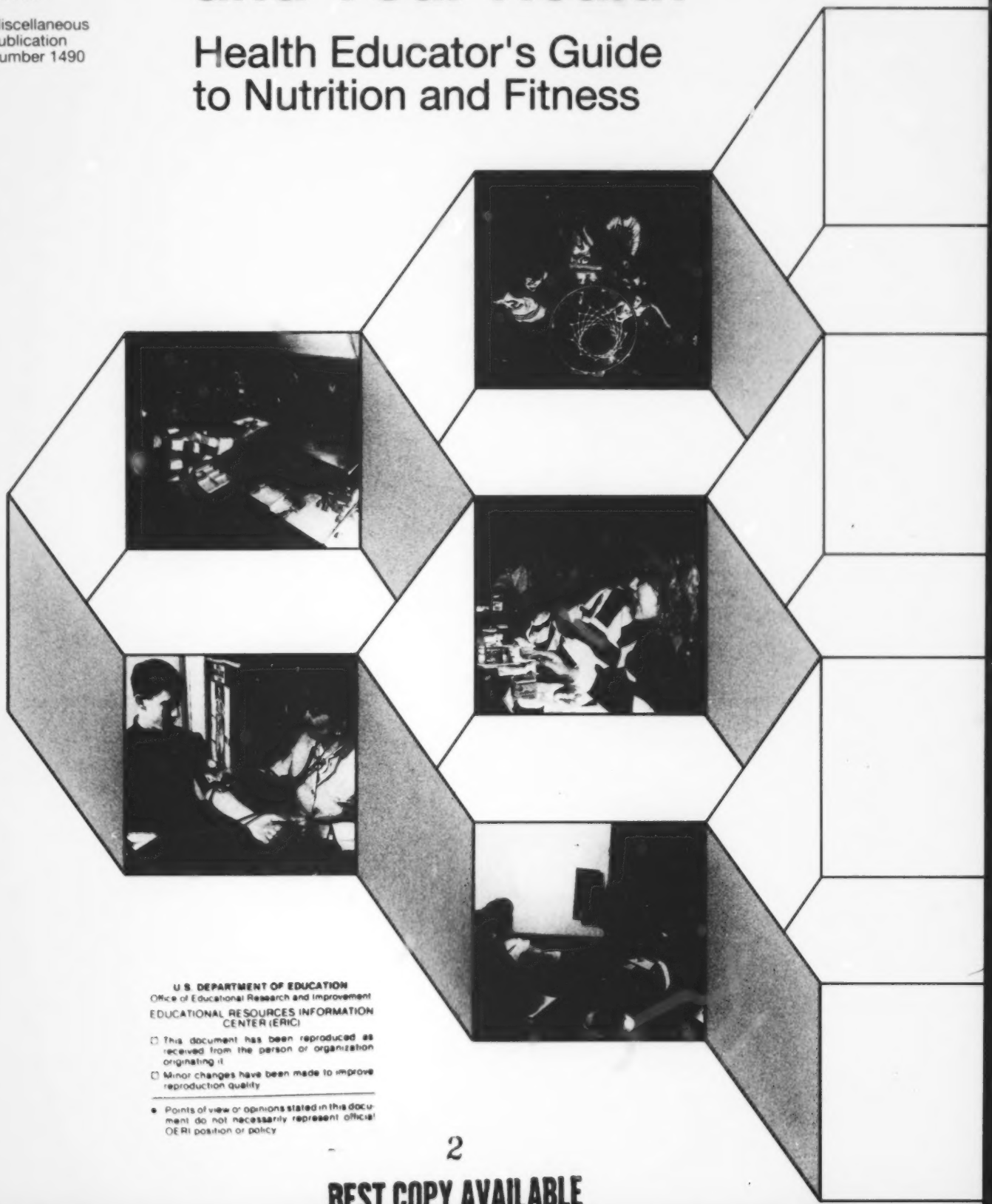
Human Nutrition Information Service

Miscellaneous Publication Number 1490

Dietary Guidelines and Your Health

Health Educator's Guide to Nutrition and Fitness



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December 1992

A Look at Dietary Guidance

What should Americans eat to stay healthy?

The Dietary Guidelines for Americans, published by the U.S. Departments of Agriculture and Health and Human Services, are seven recommendations designed to help healthy Americans ages 2 and over stay healthy and perhaps even improve their health. These Guidelines are straightforward, simple recommendations for making food choices. The Guidelines represent the best current advice that nutrition scientists can give to Americans. As new scientific evidence is gained linking diet and health, the Dietary Guidelines are revised.

Sound dietary guidance, as provided by the Dietary Guidelines for Americans, is important in a world with so many food choices and so many sources of nutrition information.

Many people are aware that diets with too many calories or too much fat (especially saturated fat), cholesterol, and sodium, and too little complex carbohydrate and fiber may contribute to America's high rate of certain chronic diseases: including heart disease, high blood pressure, strokes, the most common form of diabetes, and some types of cancer. Yet sorting through information on diet and disease can be a difficult task! Although vitamin and mineral deficiencies aren't common in this country, many people do not get the recommended amounts of some nutrients. Women especially often don't consume enough calcium and iron.

Dietary Guidelines for Americans

- **Eat a variety of foods.**
- **Maintain healthy weight.**
- **Choose a diet low in fat, saturated fat, and cholesterol.**
- **Choose a diet with plenty of vegetables, fruits, and grain products.**
- **Use sugars only in moderation.**
- **Use salt and sodium only in moderation.**
- **If you drink alcoholic beverages, do so in moderation. (For teens, "Avoid alcoholic beverages.")**

The first two Guidelines form the framework for a healthy diet: "Eat a variety of foods" for the nutrients you need and energy (calories) to "Maintain healthy weight." The other five Guidelines underscore qualities of a good diet.

The Dietary Guidelines offer flexibility without suggesting the elimination of any food. Instead, these Guidelines encourage wise choices from the varied, plentiful, and safe supply of foods enjoyed by Americans.

Other organizations, such as the American Heart Association, the American Cancer Society, and the National Cholesterol Education Program of the National Institutes of Health, have made dietary recommendations that are similar to the Dietary Guidelines for Americans.

To help the public choose a varied diet in line with the Dietary Guidelines, USDA has developed a food guide, "The Food Guide Pyramid." ("The Food Guide Pyramid" is a new format for "A Pattern for Daily Food Choices.") This food guide goes beyond the "Basic Four" used previously to help ensure selection of a diet with adequate nutrients and calories for good health. Lesson 2 helps students use the food guide, which emphasizes foods from five major groups — (1) vegetables; (2) fruits; (3) breads, cereals, rice, and pasta; (4) milk, yogurt, and cheese; (5) meats, poultry, fish, dry beans and peas, eggs, and nuts; and cautions against having too much from a sixth group — fats, oils, and sweets. Alcoholic beverages are also in this group.

Food alone won't guarantee good health. Good health also depends on heredity, environment, health care, and lifestyle — such as how much people exercise and whether they smoke or drink alcoholic beverages to excess, for example. Good food habits based on the Dietary Guidelines can help people get the nutrients they need and may reduce the risk of certain chronic diseases.

For More Information on Dietary Guidelines, Contact...

- The Human Nutrition Information Service (HNIS) for a list of current publications on topics related to the Dietary Guidelines. Address queries to: U.S. Department of Agriculture, HNIS, Room 328-A, 6505 Belcrest Road, Hyattsville, Maryland 20782, (301) 436-8617. Some available resources:

  - *Dietary Guidelines and Your Diet: Home Economics Teacher's Guide* (MP 1457) (Note: Although the activities differ, this guide is similar in format to the *Health Educator's Guide*. You may wish to integrate your instruction with the home economics department.)
  - *Dietary Analysis Program for IBM-Compatible Computers*
  - *Preparing Foods & Planning Menus Using the Dietary Guidelines* (HG 232-8)
  - *Making Bag Lunches, Snacks & Desserts Using the Dietary Guidelines* (HG 232-9)
  - *Shopping for Food & Making Meals in Minutes Using the Dietary Guidelines* (HG 232-10)
  - *Eating Better When Eating Out Using the Dietary Guidelines* (HG 232-11)
  - *The Food Guide Pyramid* (HG 252)

- The Food and Nutrition Information Center (FNIC) at USDA's National Agricultural Library. Request a copy of the current publications list which includes a listing of the Pathfinder/Nutri-Topics series from FNIC, National Agricultural Library, Room 304, Beltsville, Maryland 20705, (301) 504-5719. Nutri-Topics are lists of print and audiovisual resources on a wide variety of nutrition topics.

- Your local county Extension agent (Cooperative Extension Service), public health nutritionist, home economics teacher, or dietitian in hospitals or other community agencies.

- The Nutrition Education and Training (NET) Program or school food service department in your State Department of Education.

- American Alliance for Health, Physical Education, Recreation, and Dance, 1900 Association Drive, Reston, Virginia 22091.

- Association for the Advancement of Health Education, 1900 Association Drive, Reston, Virginia 22091.

- The American Dietetic Association, 216 West Jackson, Suite 800, Chicago, Illinois 60606-6995.

- President's Council on Physical Fitness & Sports, Judiciary Plaza Suite 7103, 450 5th Street N.W., Washington, DC 20001.

Dietary Guidelines and Your Health: Health Educator's Teaching Kit An Overview

Goals and Objectives

Good food habits, along with adequate exercise and rest, are basic components of a fitness plan for adolescence — and for life. Nutrition education is an essential part of any health and physical education program!

Dietary Guidelines and Your Health: Health Educator's Teaching Kit is designed to help you make nutrition education contemporary, interesting, and relevant to teenagers. The instructional plan goes beyond the traditional food group approach. It includes lessons to help you teach students to use the Dietary Guidelines as another important tool for making wise food choices during adolescence and throughout life.

Students who complete the learning activities outlined in the **Health Educator's Guide** should be able to —

- state why the Dietary Guidelines for Americans were established,
- explain ways to select foods to meet the Dietary Guidelines, and
- apply the Dietary Guidelines to their everyday food decisions.

Components

The Dietary Guidelines and Your Health: Health Educator's Teaching Kit has four instructional components:

Nutrition and Your Health: Dietary Guidelines for Americans (HG 232). This pamphlet, which presents the seven Dietary Guidelines, serves as a classroom reference for explaining the relationship between diet and health.

Dietary Guidelines and Your Diet (HG 232-1 to 232-7). These seven short bulletins — based on the 1985 Guidelines — provide detailed, "how-to" information for each Guideline. However, information in the bulletins has been adapted for classroom use through the **Health Educator's Guide**. Since the **Health Educator's Guide** refers to these bulletins, you are encouraged to read them before beginning your instruction. The publications are referenced by number, not title, in the guide.

The Food Guide Pyramid (Leaflet No. 572). The food guide graphic in this leaflet serves as a model for making daily food choices. It is reproducible so you can make photocopies for everyone in the class. Lesson 2 is built around this food guide.

Health Educator's Guide (MP 1490). Nine lessons, which include reproducible self-tests and activity masters, help you to incorporate the Dietary Guidelines into your health or physical education curriculum.

- **Lesson 1** is an overview of the Dietary Guidelines.
- **Lessons 2 through 8** each focus on one of the seven Guidelines. In each lesson, learning activities help students 1) recognize scientific evidence supporting the Dietary Guideline, 2) evaluate their own food behavior or knowledge in relation to the Guideline, and 3) explore practical ways to meet the Guideline.
- **Lesson 9** provides a summary which reinforces previous learning and helps students incorporate the Guidelines into a plan of action for good health.

In the Dietary Guidelines, the recommendation on alcoholic beverages was written for adults, for whom drinking is legal. For teens and pregnant women, the message is "avoid alcoholic beverages." Related activities in Lessons 1, 8, and 9 do not imply that drinking, even in moderation, is appropriate for adolescents.

The lessons in this **Health Educator's Guide** were designed primarily for health and physical education instruction at either the junior or senior high school level. They may be presented sequentially as a single unit or incorporated as independent lessons into various teaching units in the health and physical education curriculum.

The lessons are student-oriented with learning strategies designed to help motivate and increase teens' understanding and use of the Dietary Guidelines. Hands-on activities encourage critical thinking and problem solving. (Note: "Fitness...On the Move" in each of the nine lessons has been created for the special interests of coaches and physical education teachers.)

Lessons 1, 2, 5, 6, 7, and 8 are designed for a single class period. Lessons 3, 4, and 9 require two class periods. All lessons can be extended with homework and supplemental activities.

Some "Learning More..." activities are keyed for integration with other subject areas:

science,

social studies/current issues,

language arts,

home economics,

art, and

mathematics.

Some homework might extend the Dietary Guidelines message to families. In addition, your school nurse

and school food service personnel, county extension home economist, public health nutritionist, or local dietitian may serve as classroom resources.

To accurately complete the self-tests, students should complete a 7-day food record prior to Lesson 2. These records will be used in most lessons in this unit. Explain that 1) this is a personal record that other students will not see, 2) this record will help them learn more about their own food patterns, and 3) they should record everything — food, beverages, snacks — that they put in their mouths for 7 days. Provide them with seven sheets, one for each day, to keep their records. Suggested headings on each sheet are:

When eaten	What food	How prepared (baked, fried, etc.)	How much eaten	Where eaten

Check with students at midweek; they may need an incentive to continue the record. If students don't complete the 7-day record, they can answer questions on the self-tests from recall, which is less accurate.

Lesson 1

Eat for Good Nutrition

Overview of the Dietary Guidelines

Objectives...

After completing the lesson, students will be able to —
- state the Dietary Guidelines,
- define a risk factor, and
- give reasons for following the Dietary Guidelines.

Key Points...

1. The Dietary Guidelines are a set of eating recommendations for healthy Americans ages 2 and over, meant to help keep people healthy and perhaps improve their health. These Guidelines are based on current knowledge of the link between diet and health.
2. Healthful food choices — based on variety, moderation, and balance — may reduce the risk of some chronic diseases.
3. Variety means eating enough foods from five major food groups and selecting different foods within each group — (1) vegetables; (2) fruits; (3) breads, cereals, rice, and pasta; (4) milk, yogurt, and cheese; and (5) meats, poultry, fish, dry beans and peas, eggs, and nuts.
4. Eating a variety of foods provides the nutrients and fiber needed for good health and the calories needed to maintain healthy weight.
5. Moderation means not eating too much of foods from the sixth food group — fats, oils, and sweets. Alcoholic beverages are also in this group. Foods from this group can be high in fat, saturated fatty acids, cholesterol, sugars, salt, or sodium.
6. A risk factor is a characteristic or condition that may increase the chance that something harmful (such as a chronic disease) will happen.
7. Many American diets have too many calories and too much fat (especially saturated fat), cholesterol, and sodium, and/or too little complex carbohydrates and fiber. Such diets are one cause of America's high rates of obesity and of certain diseases — heart disease, high blood pressure, stroke, diabetes, and some forms of cancer.
8. Drinking alcoholic beverages poses several health risks.
9. Food alone cannot make someone healthy. Good health also depends on heredity, environment, health care, and lifestyle factors, such as exercise.

Materials for Learning...

9- x 12-inch envelopes or pocket folders for each student's use for making food time capsules
food labels, magazine pictures of foods, fast food containers, recipes, and other food and nutrition-related items for food time capsules
"Eat for Good Nutrition" activity sheet from page 11
chalkboard, chalk

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- Duplicate the "Eat for Good Nutrition" activity sheet for each student.

Notes to You...

- Lesson 1 creates an awareness of the Dietary Guidelines as advice for making healthful food choices. This lesson can be used singly if you can devote only one session to the Guidelines.
- If you teach only this lesson, you may wish to include information on the food guide, as presented in Lesson 2. The food guide is shown in "The Food Guide Pyramid" in the leaflet and as "A Pattern for Daily Food Choices" on page 6 of the bulletin on variety (HG 232-1).
- Prior to this lesson, have students bring in a variety of items that reflect their food choices for a food time capsule: food labels, magazine pictures of foods, fast food containers, recipes, etc. Students will make the food time capsules in class.
- The Dietary Guideline — "If you drink alcoholic beverages, do so in moderation" — was intended for adults for whom drinking alcoholic beverages is legal. This wording may be viewed mistakenly by teens as a sign that drinking is okay for them. For teens, use the message "Avoid alcoholic beverages" instead.
- This lesson may be incorporated into units on nutrition, personal health, or consumer health.
- Before the lesson, clarify terms in the Dietary Guidelines that students don't understand, such as cholesterol, complex carbohydrates, fiber, healthy weight, saturated fatty acids, sodium, and sugars.

Lesson Plan...

1 Have students show items for their food time capsules. Discuss these points:

- **What do these items suggest about foods people eat today?** Accept a variety of responses.
- **How do you think your food choices compare with your grandparents' food choices?**
- **A time capsule represents a time in history.**
- **The items in your food time capsule offer clues about your food choices in the 1990s. They also tell something about your food habits and preferences.**
- **What you eat may influence your health now — and in the future.**

Encourage them to use the capsule to store items from other lessons in this Dietary Guidelines unit.

2 Have students produce their own set of guidelines for healthful eating. Distribute the activity sheet "Eat for Good Nutrition." Discuss:

- **From the 13 statements on the activity sheet, choose the seven best guidelines to help keep you fit for a lifetime.** (This may be done individually or in groups.)

Discuss the guidelines students selected to see what they believe about eating for good nutrition.

3 Introduce the Dietary Guidelines for Americans. For background, refer to the Dietary Guidelines for Americans pamphlet (HG 232). Say:

- **Nutrition experts have established Dietary Guidelines for Americans. They were published first by the U.S. Government in 1980 and revised in 1985 and 1990. These Guidelines are periodically revised as more is known about diet and health.**
- **The Dietary Guidelines are recommendations about eating to help healthy Americans ages 2 and over — not just teens — maintain and perhaps improve their health.**
- **The first two Guidelines form the framework for a healthy way of eating: (1) "Eat a variety of foods" for the nutrients you need and for the energy (calories) you need to (2) "Maintain healthy weight."**
- **The next two Guidelines stress the need for many Americans to change their diets to ones that are lower in fat, especially saturated fat, and are higher in complex carbohydrates and fiber: (3) "Choose a diet low in fat, saturated fat, and cholesterol" and (4) "Choose a diet with plenty of vegetables, fruits, and grain products."**
- **Other Guidelines suggest moderation in the use of sugars, salt, and, if used at all, alcoholic beverages: (5) "Use sugars only in moderation," (6) "Use salt and sodium only in moderation," and (7) "Avoid alcoholic beverages."**

Write the Guidelines on the board as you name them.

4 Compare the students' dietary guidelines with the established Dietary Guidelines for Americans. Say:

- **On your activity sheet, circle the Dietary Guidelines for Americans, which have been established by the U.S. Government.**
- **How do the seven guidelines you chose compare with those established by nutrition experts?**

Discuss the statements on the activity sheet which are *not* among the established Dietary Guidelines:

- Avoid snacking. **To the contrary, nutritious snacks can contribute to a healthful diet. What is eaten throughout the day is important, not when.**
- Eat an apple a day for good health. **Though nutritious, apples don't hold any "magic" for good health. A varied diet, not a single food, promotes good health.**
- Avoid desserts. **Desserts can be part of a healthful diet, especially when they are chosen carefully.**
- Avoid candy, chips, and soft drinks. **Eaten occasionally, these foods may add pleasure to eating. But these foods tend to be high in fat, sugar, and/or sodium, and low in nutrients.**
- Eat a green vegetable every day. **Eating enough vegetables is part of the Guideline "Eat a variety of foods." But no single food provides all of the nutrients you need for good health.**
- Avoid fast foods. **Any food can fit in a diet that matches the Dietary Guidelines. However, many fast foods are high in calories, fat, sugars, and/or sodium. Salads, milk, fruit juice, broiled chicken breast, whole-wheat rolls, and plain baked potatoes are among the Guidelines-style choices on today's fast food menus.**

5 Further explain the Guidelines. On the board, write "variety," "moderation," and "balance." Discuss:

- **How do these terms relate to a good diet?**
- **Variety means getting adequate servings from five major food groups — (1) vegetables; (2) fruits; (3) breads, cereals, rice, and pasta; (4) milk, yogurt, and cheese; (5) meats, poultry, fish, dry beans and peas, eggs, and nuts.**
- **Variety also means eating many different foods within each food group.**
- **Moderation means avoiding extremes: for example, not eating too many calories or too much fat, and not eating too little, either. Foods from the sixth food group — fats, oils, and sweets — should be used sparingly.**
- **Balance means putting it all together. You get the variety of foods you need for the 40 or more nutrients needed for good health and the calories you need to maintain healthy weight, without getting too much fat, saturated fatty acids, cholesterol, sugars, salt, and sodium.**
- **By following the Dietary Guidelines you don't need to give up your favorite foods. When you eat a food high in fat or sodium, you can compensate by balancing it with foods that are lower in fat or sodium. It's the total diet — or what you eat throughout the day — that counts.**

6 Discuss why Dietary Guidelines were established by nutrition experts:

- **Why do you think that Dietary Guidelines were established?**
- **Many people don't get the recommended amounts of some nutrients, especially calcium and iron. A varied diet provides the nutrients people need.**
- **Diets which are: (1) too high in calories, (2) too high in fat, saturated fatty acids, cholesterol, and sodium, and (3) too low in complex carbohydrates and fiber — are one cause of obesity. These diets also can increase the risk for certain health conditions, such as heart disease, high blood pressure, stroke, diabetes, and some cancers.**
- **A risk factor is a condition or characteristic that may increase the chance that something harmful will happen. For example, you may have a greater risk of having an accident if you ride a bike on an expressway than on a country road, but that doesn't mean you'll be hit by a car. Likewise, eating a high-fat diet is a risk factor for heart disease. This means that if you eat a high-fat diet much of your life, you may have a greater chance of developing heart disease, but that doesn't mean you'll get the disease for sure.**
- **Many Americans are overweight because they consume more calories than they use. Being too fat is a risk factor for high blood pressure, heart disease, stroke, the most common type of diabetes, some cancers, and other types of illness. (Heart disease and cancer are the two leading causes of death among Americans.)**
- **For some people, a diet high in fat, saturated fatty acids, and cholesterol increases the chance that they will develop heart disease and strokes.**
- **For some people, a low-fiber diet increases the chance that they will develop certain health conditions involving the colon, such as chronic constipation and perhaps colon cancer. How fiber is involved in colon cancer is yet unclear.**
- **For some people, a high-sugar diet increases the chance that they will develop tooth decay. Many foods high in added sugars are high in calories and low in nutrients.**
- **For some people, a high-salt/high-sodium diet increases the chance that they will develop high blood pressure.**
- **Drinking alcohol is illegal for teens. For those who are old enough and choose to drink alcoholic beverages, moderation is recommended. Excessive consumption of alcoholic beverages can increase the risk of liver disease, some forms of cancer, and malnutrition, and may lead to addiction. Heavy drinking may result in traffic accidents and other types of accidental injury. Pregnant women should avoid drinking alcoholic beverages, which can harm a developing baby.**

7 Refer students to the end of the activity sheet "Eat for Good Nutrition" again. Say:

- **Complete the sentence with a statement about how you could better follow the Dietary Guidelines.**
- **Place this Dietary Guidelines activity sheet in your time capsule.** Have students keep their food time capsules for reference in other activities in the Dietary Guidelines unit.

Summarize:

- **Food alone cannot make you healthy.**
- **Your good health also depends on your family history of disease, your access to health care services, your environment, and your lifestyle — how much you exercise and whether you smoke, drink to excess, or abuse drugs, for example.**
- **However, a diet based on these Dietary Guidelines can help keep you healthy and may improve your health.**

Learning More...

These supplemental activities are written for classes that use all nine lessons. The activities in Lessons 2 through 9 would make appropriate supplemental activities if only Lesson 1 is taught.

"Healthline." Have students write a general-interest story on the Dietary Guidelines for "Healthline" newsletter. Have them write for a specific target audience. The story should include the five "w's" and one "h" used by reporters: *what* the Dietary Guidelines are, *whom* they are meant for, *why*, *where*, and *when* they were developed, as well as *how* they are used. As a "Learning More..." activity in each lesson of this guide, students may write various features for "Healthline," then save the stories to edit into a completed newsletter for the culmination of the Dietary Guidelines instruction. (Optional: Outstanding newsletters may be distributed within the school and/or community.)

"A Call for Health Advice." Have students find out about telephone "hotlines" which give consumer information on nutrition and health. As a reference, "Health Hotlines," a listing of toll-free telephone numbers, is available at no charge from DIRLINE Information, Specialized Information Services, National Library of Medicine, 8600 Rockville Pike, Bethesda, MD 20894.

"Health in the News." Throughout the unit, have students bring in newspaper and magazine clippings related to the Dietary Guidelines. Discuss the source and implications of the information. Recognize that stories may provide conflicting information. Perhaps it's new research which science has yet to prove. Sometimes stories are meant to be purposely misleading. Ask: Does the story cite respected authorities or institutions? Is the information backed by medical evidence, rather than testimonials? Does the story avoid "miracle" promises and special health claims? Post the articles on your "Health News" bulletin board.

Fitness...On the Move

Snacks provide nutrients and calories for growing, physically active teens. Guidelines-style snacks that are lower in fat, saturated fatty acids, cholesterol, sugars, and sodium are good choices. Encourage teens to try snacks like these: unsalted, unbuttered popcorn; pretzels; whole-grain crackers; fruit juices; fresh fruits and vegetables; raisins and other dried fruits; lowfat milk, yogurt, and lowfat cheeses. Athletes involved in regular, strenuous activity could have higher-calorie, nutritious snacks.

ACTIVITY SHEET FOR LESSON 1

EAT FOR GOOD NUTRITION

Are you "in action"? Are you ready to stay in shape — for a lifetime? From these statements, check (✔) seven best guidelines for smart eating that can help keep you healthy.

- ___ ◆ Use salt and sodium only in moderation.
- ___ ◆ Choose a diet low in fat, saturated fat, and cholesterol.
- ___ ◆ Avoid snacking.
- ___ ◆ Eat an apple a day for good health.
- ___ ◆ Use sugars only in moderation.
- ___ ◆ Avoid desserts.
- ___ ◆ Maintain healthy weight.
- ___ ◆ Avoid alcoholic beverages.
- ___ ◆ Eat green vegetables every day.
- ___ ◆ Avoid candy, chips, and soft drinks.
- ___ ◆ Choose a diet with plenty of vegetables, fruits, and grain products.
- ___ ◆ Eat a variety of foods.
- ___ ◆ Avoid fast foods.

I WANT TO FOLLOW THE DIETARY GUIDELINES SO I STAY HEALTHY. HERE'S HOW I'LL EAT SMART:

_____

_____

_____

_____

_____

SIGNED _____

DATE _____

Lesson 2

Fractured Tales...With a Healthy Twist

Eat a Variety of Foods

Objectives...

After completing the lesson, students will be able to —

- explain the importance of a varied diet,
- identify key nutrients in each of five major food groups,
- discuss why fats, oils, and sweets from the sixth food group supply calories, but few nutrients,
- evaluate the variety of food in their diet,
- plan a healthful day's menu with adequate servings from each of five major food groups, and
- understand why most healthy people do not need nutrient supplements, such as vitamin pills.

Key Points...

1. No one food supplies all of the essential nutrients in the amounts needed for health.

2. The body needs more than 40 different nutrients for good health. Essential nutrients include vitamins, minerals, amino acids from protein, certain fatty acids, and sources of calories (protein, carbohydrates, and fats). These nutrients should come from a variety of foods.

3. Any food that supplies calories and nutrients can be part of a healthful diet. The nutrient content of the total diet over a day or more is what matters.

4. Each of five major food groups — (1) vegetables; (2) fruits; (3) breads, cereals, rice, and pasta; (4) milk, yogurt, and cheese; and (5) meats, poultry, fish, dry beans and peas, eggs, and nuts — contributes certain nutrients essential for health.

5. A varied diet provides adequate servings from each of five major food groups and a variety of foods within each group.

6. Foods from the sixth group — fats, oils, and sweets — provide calories, but few nutrients. Alcoholic beverages also belong in this group, but should not be consumed by teens.

7. Diets of some groups of people are notably low in some nutrients. Many teenage girls, for example, need to eat more calcium-rich and iron-rich foods.

8. Most people don't need nutrient supplements if they consume an adequate and varied diet from the five major food groups.

Materials for Learning...

3 large pieces of poster board, markers
chalkboard, chalk; *or* large sheets of paper, marker
"How Does Your Diet Rate for Variety?" self-test from page 55
7-day food record for each student (See "Notes to You..." below.)
"The Food Guide Pyramid" (leaflet)
"Food Groups: Some Foods They Contain" from page 7 of the bulletin on variety (HG 232-1)
"Fractured Tales...With a Healthy Twist" worksheet from page 17

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- Label three blank posters for students to write on. On each of three poster boards, write one of these headings: (1) variety of foods, (2) good nutrition, or (3) food groups.
- Duplicate "How Does Your Diet Rate for Variety?", "The Food Guide Pyramid," "Food Groups: Some Foods They Contain," and "Fractured Tales...With a Healthy Twist" for each student.

Notes to You...

- This lesson may be incorporated into a unit on nutrition or personal health.
- For this lesson, students should be familiar with nutrients. Refer to pages 2 through 5 of the bulletin on variety (HG 232-1) if they need review.
- The leaflet on "The Food Guide Pyramid" presents a guide to daily food choices (formerly shown as "A Pattern for Daily Food Choices" on page 6 of the bulletin on variety (HG 232-1)). The food guide differs from the Basic Four in the way foods are grouped and in the suggested number of servings. The Basic Four provided the *foundation* for good nutrition. "The Food Guide Pyramid" (1) suggests ranges of servings for most food groups that will provide *total* calorie and nutrient needs and (2) addresses Dietary Guidelines concepts. Your students, for whom the simpler four food group guide may be "old hat", are probably ready to understand and use this new pattern in their attempt to understand and follow the Dietary Guidelines. The new food guide features five major food groups — (1) vegetables; (2) fruits; (3) breads, cereals, rice and pasta; (4) milk, yogurt, and cheese; and (5) meats, poultry, fish, dry beans and

peas, eggs, and nuts. A sixth group includes fats, oils, and sweets. In addition to fruits and vegetables being separate groups in this guide, important food subgroups, such as whole grains and dark-green leafy vegetables, are highlighted.

- At the start of the lesson, review the terms in the bulletin on variety (HG 232-1): calorie-dense foods, calories, carbohydrates, fats, minerals, nutrient-dense foods, nutrients, protein, variety, vitamins, and whole grains.
- Prior to Lesson 2, have students complete a 7-day food record of all their meals and snacks. (To complete the self-tests in these lessons, students will need a full 7-day record.) See page 6 of this teacher's guide for instructions. These completed food records will also be used as a reference for Lessons 2 through 7 and Lesson 9. Have students keep them in their time capsules from Lesson 1.

Lesson Plan...

1 To begin the lesson, hang up the three poster boards. Each has a different heading: "variety of foods," "good nutrition," and "food groups." Have students walk around the room and write a word that comes to mind on each poster. Briefly talk about their ideas and how the three concepts are related.

2 Introduce the Guideline for this lesson, and review the concept of nutrients. Say:

- **Today you'll learn more about the importance of variety as we talk about one of the Dietary Guidelines — "Eat a variety of foods."** Write the Guideline on the board.
- **How would you describe a varied diet?** Point out that variety means eating many different foods.
- **Why is variety important?** (To provide all the nutrients needed in adequate amounts; no food contains all the essential nutrients in any amount.)
- **What are nutrients?** (Substances in foods which perform a variety of functions in the body. Because the body cannot make them, they must come from the diet.)
- **People need over 40 different nutrients to stay healthy.**
- **Nutrients are grouped based on similar qualities. Can you name the six classes of nutrients?** (Protein, carbohydrate, fat, minerals, vitamins, water.) Refer to page 2 of the bulletin on variety (HG 232-1) for a review of the nutrients.

3 Have students evaluate their diets for variety, using the 7-day food records they completed earlier. Say:

- **See if your diet has variety.**
- **Variety means having lots of different foods. On your food record, count the number of different foods you ate each day during the 7 days. Note: The same food in different forms — such as an apple and applesauce or an orange and orange juice — counts as one type of food. What was your average?** Accept and compare students' answers.
- **Variety also means having several servings from each of five major food groups.**
- **Use your 7-day food record to answer the questions on this self-test.**

Distribute the self-test "How Does Your Diet Rate for Variety?" Give students time to complete the self-test. Explain any terms they don't know. Then discuss students' answers on the self-test.

- **Do you think your food choices on those 7 days were typical for you? Why?** If not, ask: **Why not?** Reasons may include illness or special occasions.
- **Count to see if most of your check marks on the self-test appear in the last two columns.**
- **What do your answers say about your diet?**
- **If most of your check marks are in the first two columns, you need to think "V" for variety. Take a careful look at your 7-day food record and, as homework, write some ideas at the bottom of the page for changing your food choices to meet food group guidelines.**
- **If most of your check marks are in the last two columns, you're on the pathway to good health. Continue to eat smart!**

Review each question on the self-test, referring to the answers on page 8 of the bulletin on variety (HG 232-1) in your discussion.

4 Introduce the first five food groups. Distribute "The Food Guide Pyramid" leaflet. Say:

- **How would you define a varied diet?** (Several servings from each of five major food groups each day; different foods within each group.)
- **To help you select a variety of foods, nutritious foods have been classified into five major food groups. What are those five groups?** Point out that they may know about four food groups. In this guide fruits and vegetables are placed in separate groups, emphasizing the importance of each.
- **Some foods and beverages, such as candy, soft drinks, butter and margarine, salad dressings, and jam, belong to a sixth food group — fats, oils, and sweets. Alcoholic beverages are also in this group. Fats and sweets are extras, adding flavor and texture to food and providing mainly calories with few nutrients. Teens should not drink alcoholic beverages.** Go over the suggested daily servings and serving sizes on "The Food Guide Pyramid."
- **How might you plan a menu with variety?** (Use the food group guidelines; eat a variety of foods within each food group.)

- **Almost everyone should have at least the lower number of servings from each food group. Many women, older children, and most teenagers and men need more because of their body size and activity level.**

5 Have students use "fractured tales" to learn more about the food groups. Distribute the worksheet "Fractured Tales...With a Healthy Twist." Divide students into seven groups, one per tale. Each group should finish one story with appropriate nutrition advice for the food group(s) underlined, then present it to the class in a creative manner. Give them several minutes to work on their fractured tale. Encourage them to have fun with the project!

6 Have students present the fractured tale of Hansel and Gretel and the concept of *variety*. The story ending and discussion should cover the points from pages 1 and 6 of the bulletin on variety (HG 232-1) and "The Food Guide Pyramid" leaflet.

- **Variety includes foods from five major food groups every day and includes many different foods within each food group.**
- **A varied diet can provide the nutrients needed for good health.**
- **No one food supplies all the essential nutrients in the amounts needed, so eating a variety of foods is important.** Point out that supplements, such as vitamin pills, aren't necessary if people eat a varied, balanced diet. Large doses of nutrient supplements can be harmful.
- **Certain other foods from a sixth food group — fats, oils, and sweets — provide few vitamins and minerals, but they do provide calories. They also add flavor and taste appeal.**

7 Have students present the fractured tale of Goldilocks and *breads, cereals, rice and pasta*. The story ending and discussion should cover the points from pages 2, 5, and 6 of the bulletin on variety (HG 232-1) and "The Food Guide Pyramid" leaflet. You might also refer to page 2 of the bulletin on starch and fiber (HG 232-4) for background on grain products.

- **Grain products contribute starch (complex carbohydrate), several B vitamins, and minerals (including iron) to a balanced diet.**
- **Starch — a carbohydrate — is an excellent source of energy, which is important for athletes and others.**
- **B vitamins have many functions, including helping to release energy from carbohydrates.**
- **Whole grains are also good sources of fiber in addition to providing starch.**
- **Dietary fiber provides bulk to the diet and helps to move waste through the intestinal system, so it helps prevent and treat constipation and some conditions that irritate the bowel.**
- **Some people think that grain products, or "starchy" foods, are fattening. This isn't true. But what you put on them — high-fat spreads, sour cream, gravies — can add lots of calories.**
- **Six to 11 servings a day of grain products are recommended, depending on your age, size, and activity level. Several servings should be whole-grain products.** Discuss serving size, such as 1 slice of bread or 1/2 cup rice or pasta. (See "The Food Guide Pyramid" leaflet.)

8 Have students present the fractured tale of Little Red Riding Hood and *fruits*. The story ending and discussion should cover the points from pages 5 and 6 of the bulletin on variety (HG 232-1). Page 7 of the bulletin lists a variety of fruits — some unusual — which students might learn about.

- **Fruits provide a number of important vitamins and minerals. Many fruits are particularly good sources of vitamins C and A, as well as fiber.**
- **The nutrient content of fruits differ, so you especially need variety within this food group.**
- **Citrus fruits, strawberries, and peaches are among the good sources of vitamin C.**
- **Deep-yellow fruits, such as apricots, cantaloup, and papaya, are good sources of vitamin A.**
- **Apples and other fruits, especially those with edible skins or seeds (berries), are good sources of fiber.**
- **Two to four fruit servings a day are recommended.** Discuss serving size, such as 1 medium apple or orange, 3/4 cup juice, or 1/2 cup canned fruit. (See "The Food Guide Pyramid" leaflet.)

9 Have students present the fractured tale of Jack and the Beanstalk and *vegetables*. The story ending and discussion should cover the points from "The Food Guide Pyramid" and pages 4 and 6 of the bulletin on variety (HG 232-1). Page 7 of the bulletin lists a variety of vegetables — some unusual — which students might learn about.

- **All vegetables provide dietary fiber.**
- **Vegetables differ in the amount of nutrients they provide, so it's important to eat many different vegetables.**
- **Dark-green vegetables, such as broccoli, spinach, and green pepper, provide vitamins A and C and other nutrients.**
- **Deep-yellow vegetables, such as carrots, sweet-potatoes, and winter squash, are good sources of vitamin A.**
- **Starchy vegetables, including dry beans and peas, are good sources of starch (complex carbohydrate), B vitamins, minerals, and fiber. Because dry beans and peas also provide protein, they can be used as alternates for meat.**
- **Can you name other vegetables that are good**

sources of nutrients? Solicit students' answers, and refer to the list on page 7 of the bulletin on variety (HG 232-1).

- **The recommendation for vegetables is three to five servings daily, including dark-green vegetables and dry beans or peas several times a week.** Discuss serving size, such as 1/2 cup cooked vegetables or 1 cup raw, leafy vegetables. (See "The Food Guide Pyramid" leaflet.)

10 Have students present the fractured tale of Cinderella and *milk, yogurt, and cheese.* The story ending and discussion should cover the points from pages 3 and 6 of the bulletin on variety (HG 232-1) and "The Food Guide Pyramid" leaflet.

- **Milk, yogurt, and cheese are good sources of calcium, as well as protein, riboflavin, and other nutrients.**
- **Many teenagers, especially girls, don't get enough calcium. You need calcium for your bones, which are still forming even if you've stopped growing taller. And you need calcium throughout your adult years to maintain strong bones.** Refer to page 3 in bulletin HG 232-1 for information about osteoporosis.
- **Teenagers and young adults need at least three servings daily. If you don't drink milk, yogurt and cheese are good alternatives.** Discuss serving size, such as 1 cup of milk or yogurt or 2 ounces of process cheese.
- **Many scientists believe that getting adequate calcium throughout life and doing weight-bearing exercises, such as walking, may help prevent a bone disorder called osteoporosis later in life.**

11 Have students present the fractured tale of Snow White and *meats, poultry, fish, dry beans and peas, eggs, and nuts.* The story ending and discussion should cover the points from pages 5 and 6 of the bulletin on variety (HG 232-1) and "The Food Guide Pyramid" leaflet.

- **Meat, poultry, fish, eggs, legumes (dry beans and peas), nuts, and seeds are good sources of protein, iron and other minerals, and certain B vitamins.**
- **Meat, poultry, fish, and eggs also provide fat, both saturated and unsaturated fatty acids, and cholesterol.**
- **Protein is needed for growth, maintenance, and replacement of body cells. Extra protein not needed for these purposes supplies energy or is made into body fat.**
- **Iron forms the part of the blood that supplies oxygen to body cells.**
- **For most people, getting enough food from this food group isn't a problem. People only need two to three servings daily, totaling 5 to 7 ounces lean, cooked meat, to get their needed protein.** Discuss serving size ("The Food Guide Pyramid" leaflet).

12 Have students present the fractured tale of Pinocchio and *fats, oils, and sweets.* The story and discussion should cover the points from "The Food Guide Pyramid" leaflet and page 6 of the bulletin on variety (HG 232-1).

- **These foods belong to the sixth food group that includes "calorie-dense," not "nutrient-dense," foods.**
- **Many soft drinks and most candies are high in sugars, so they're high-calorie, low-nutrient foods.**
- **Foods such as butter, margarine, salad oil, and mayonnaise are mainly fat, so they're also high-calorie, low-nutrient foods.**
- **Catsup, syrup, and jam are among other foods in this group.**
- **Alcoholic beverages also belong in this group because they are high in calories and low in nutrients. Teens should not drink alcoholic beverages.**
- **Eating too many high-calorie, low-nutrient foods can make it easy to gain weight and may keep you from eating more nutritious foods.**
- **It's okay to eat these foods sometimes, however. There are no good foods or bad foods. The nutritional value of the total diet, not just one food, is what counts.**

Have students brainstorm a list of calorie-dense foods. Refer to page 7 of the bulletin on variety (HG 232-1).

13 As a check for understanding, have students write their own individual endings to the fractured tales. To tie in with the language arts program, they might turn their stories into children's books, or they might dramatize their tales for elementary grade students.

14 For homework, have students evaluate one day of their 7-day food records using the food groups and "The Food Guide Pyramid." Have students add up the servings for each group; remind them that some of their foods may only be partial servings and some may be more than one serving. Have them compare their totals with food group recommendations and write menu changes that would help provide adequate servings from the five major food groups. Review the activity in class.

Learning More...

"Healthline." Have students create a crossword puzzle for "Healthline" newsletter, promoting the value of a varied diet. Have them include information about nutrients and food groups. The bulletin on variety (HG 232-1) could be used as a reference. Have students save the crossword puzzle for Lesson 9 to edit into the completed newsletter.

"Locker-Room Snack Poster." Have students create a poster for smart after-school snacking. Show a variety of nutritious foods, including snacks from all five major food groups. Hang the posters in the gym. Coaches and school athletes might pick "winning" posters.

"Variety in School Meals." Have students use the school's weekly menus to see how meals represent the food groups. With your school food service director, discuss the possibility of having students help plan several school breakfast or lunch menus for the coming months. Ask school food service staff to talk about the guidelines they use for planning school meals.

"A Problem with Milk Sugar?" Have students do library research to learn about lactose intolerance, the symptoms, and how people who have trouble digesting milk can get the nutrients that milk provides. For background, refer to "What if You Can't or Don't Drink Milk?" on page 3 of the bulletin on variety (HG 232-1).

"A Vegetarian Diet?" People on vegetarian diets may not eat meat, poultry, fish, eggs, or dairy products. Have students do some research, then create menus showing how to make a vegetarian diet nutritionally sound. (Note: dry beans and peas, seeds, and nuts, carefully combined with cereal products and/or dairy foods, can provide adequate protein to the diet; however diets without dairy foods will likely be low in calcium.) Refer to page 5 of the bulletin on variety (HG 232-1) for some background.

"Fruits and Vegetables — A Taste Adventure." On your own or with the help of the school food service manager, set up a tasting experience with unusual fruits and vegetables such as chayote, kohlrabi, rutabaga, jicama, snow peas, sprouts, jerusalem artichokes, asian pear, guava, kiwifruit, mango, and papaya. Include other fruits and vegetables from page 7 of the bulletin on variety (HG 232-1).

"The Grain Connection." Point out that "The Food Guide Pyramid" suggests 6 to 11 daily servings of grain products. Have students brainstorm different ways to include grains in their diet: e.g., mix pasta or rice in salads or soups, choose whole-wheat crackers or bran muffins as snacks. Point out that carbohydrate-rich foods are not fattening, but the add-ons (e.g., butter, margarine, jellies, peanut butter) may be high in calories.

Fitness...On the Move

What's the best diet for student athletes? Whether kids are involved in sports or not, the best diet for peak performance is moderate, varied, and balanced. The nutrient needs of athletes and nonathletes are similar. Depending on how much energy they use in sports, most athletes do need more calories, however. Carbohydrate-rich foods, such as bread, pasta, rice, cereals, and dry beans, are among the best sources of extra calories. Contrary to popular myth, extra protein from foods, powders, or pills won't build extra muscle. Muscle building occurs through muscle use, such as regular exercise and physical training. No evidence shows that ergogenic aids (such as bee pollen, lecithin, etc.), promoted to enhance athletic performance, really increase work output.

ACTIVITY SHEET 9 FOR LESSON 2

FRACTURED TALES...WITH A HEALTHY TWIST

As a kid you heard many tales. But here's a new twist. These fictional "experts" may know more about nutrition and keeping fit than you ever thought. On a separate sheet, finish these fractured tales with accurate nutrition information and advice.

◆ **Little Red Riding Hood** is off with a basketful of fruit for Grandmother to "wolf down." But on her way, the Big Bad Wolf spies her basket with a very curious and clever eye. Equally clever, Little Red Riding Hood distracts the wolf by chattering about the basket of luscious fruit as she continues on her way. And the story continues..._____

◆ In preparation for the ball, **Cinderella**'s Fairy Godmother says, "I can help you be on the top of the world tonight. But to help you feel that way for a lifetime, you need to eat wisely and well. That includes eating enough milk, yogurt, and cheese." Her Fairy Godmother suggests..._____

◆ **Hansel and Gretel** sprinkle whole-wheat crumbs through the forest as a trail. But they get lost when the crumbs are eaten. Soon they come upon a Gingerbread House made of calorie-dense foods from the fats, oils, and sweets group. Surprised by the lack of nutritious foods, Hansel and Gretel set out to teach the witch a lesson about variety and the five major food groups by..._____

◆ **Goldilocks** says Baby Bear's bed and chair are "just right." But when she sits down to the porridge (from the breads, cereals, rice, and pasta group), she finds a note beside the porridge. The note says, "Goldilocks, you can share my porridge if you know how cereals can help keep you fit." She leaves a note for Baby Bear that says..._____

◆ **Jack**, a local gardener, is well-known for incredible beanstalks that reach to the sky. Before he climbs upward on his beanstalks, he offers some advice to his friends on the importance of eating...not just growing... vegetables. He says..._____

◆ The refrigerator in the toy shop was well stocked with all kinds of foods. **Pinocchio** — a puppet brought to life — nibbled on foods from the fats, oils, and sweets group when the toymaker Geppetto wasn't there. But each day, when asked what he ate, Pinocchio lied, and his nose grew longer and longer. Finally, he decided to tell the truth so his nose would return to its normal size. So he talked about these calorie-dense foods..._____

◆ Before **Snow White** came, the Seven Dwarfs didn't eat too well. But Snow White changed that. Now the Seven Dwarfs think it's only fair to pitch in and cook. But they need lessons on making smart food choices. Snow White starts with a lesson on meat, poultry, fish, dry beans and peas, eggs, and nuts..._____

Lesson 3

Body Talk

Maintain Healthy Weight

Objectives...

After completing the lesson, students will be able to —

- describe healthy weight,
- state the health risks related to eating too many or too few calories,
- identify lower and higher calorie foods from all of the food groups,
- describe the relationship of diet, exercise, and body weight,
- evaluate their eating patterns and habits for clues to caloric intake, and
- describe a healthy diet and an exercise plan that will help to achieve and maintain healthy weight.

Key Points...

1. Calories, which are a unit of energy, are needed for all body processes, such as maintenance of body temperature, growth and repair of bones and tissues, and movement of muscles including involuntary muscles such as the heart.
2. To maintain healthy weight, energy intake and calorie expenditure must balance.
3. Healthy weight for each person depends on how much of body weight is fat, where body fat is located, and whether a person has weight-related medical problems, such as high blood pressure, or a family history of such problems.
4. Heredity, along with exercise and diet, plays a role in body size and shape.
5. A moderate, varied diet, combined with exercise, is the healthiest, most effective way to achieve and maintain healthy weight. No one weight control plan is best for everyone.
6. The number of calories used in exercise depends on the intensity of activity, the length of activity, and body weight.
7. Being too fat or too lean increases the chances of developing health problems. Being too fat increases the risk of high blood pressure, heart disease, stroke, the most common type of diabetes, certain cancers, and other types of illness. Being too thin, a less common problem, is linked with osteoporosis in women and greater risk of early death in both women and men
8. Fad diets and other extreme weight-loss measures, such as self-induced vomiting or using laxatives, severely restrict the variety of foods and the calories consumed and may cause serious health problems.

Materials for Learning...

Class Period 1:
chalkboard, chalk; *or* large sheets of paper, marker
stopwatch or clock with second hand
backpack filled with about 25 pounds of books
food labels in students' time capsules from Lesson 1
"My Eating Habits: Some Clues to Calories?" self-test from page 55

★ ★ ★

- Duplicate "My Eating Habits: Some Clues to Calories?" for each student.

Class Period 2:
celery stalk
10 potato chips
"Body Talk" worksheet from page 24
"My Plan of ACTION" self-test from page 56

★ ★ ★

- Duplicate "Body Talk" and "My Plan of ACTION" for each student.

Notes to You...

- This lesson may be incorporated into units on weight control or personal health.
- The height-weight chart on page 9 of the *Dietary Guidelines for Americans* pamphlet (HG 232) is meant for adults, not for teenagers who are still growing and developing.
- Before the lesson, review the definitions of these terms: anorexia, bulimia, calorie, energy balance, obesity.

Lesson Plan...

Class Period 1:

1 Introduce the lesson by asking:

- **What does it mean to be fit?** Accept student responses.

Point out:

- **Being fit is feeling good and moving well.**
- **Maintaining your own healthy weight — not being too fat or too lean — is part of fitness.**

2 Conduct a demonstration to show how excess body weight affects the body. Ask for a student volunteer.

- Define pulse (heartbeats per minute) and respiration rate (breaths per minute).
- As a demonstration, have the student measure his/her resting pulse and respiration rate, then record the findings on the board or paper. Then have him/her walk in place for 2 minutes.
- Measure his/her pulse and respiration rate again. Record this data.
- Let the student rest until his/her pulse and respiration rate return to normal. Then have him/her put on the 25-pound backpack and walk in place for another 2 minutes. (Stop if the exercise is too strenuous.)
- Again have the student measure and record pulse and respiration rate. Ask:
- **How did** *(name)'s* **pulse and respiration rate compare before and after exercise?** (Exercise increased pulse and breathing rate.)
- **What happened when he/she exercised with the heavy backpack? (**The pulse and the breathing rate were even higher.)
- **What does this suggest about having too much body fat?** (The body — including the heart and the lungs — must work harder to perform a given amount of activity. This puts a strain on the body.)

3 Introduce the concept of healthy weight. Say:

- **In our last nutrition lesson we talked about one Dietary Guideline. What was that?** (Eat a variety of foods.) Write that Guideline on the board.
- **Today, you'll learn about another Dietary Guideline — "Maintain healthy weight."** Write the Guideline on the board.

Go on to say:

- **Healthy weight means being not too fat and not too thin.**
- **Healthy weight is different for each of you.**
- **Your healthy weight depends on how much of your weight is fat, where your body fat is located, and whether you have weight-related medical problems, such as high blood pressure, or a family history of such problems.**
- **Your healthy weight also depends on where you are in your own growth and development. Even if you've reached your adult height, as a teenager, you are still growing and developing.**
- **People have different body structures; that accounts for some differences in weight. You might be born with a small, a medium, or a large frame. You can't change your body frame.**
- **Some people weigh more than others because their excess weight is in muscle. Many football players are examples. Being overweight is only a problem if excess pounds are in body fat, rather than in muscle.**
- ***Conversely, someone may have too much body fat even though his/her weight might seem normal, if he/she doesn't have much muscle.***
- **Too much weight in the abdomen seems to be a greater health risk than too much weight in the hips and thighs.**
- **Being your healthy weight is one part of maintaining fitness. Getting enough exercise is another.**

4 Discuss the links between obesity, underweight, and health. For background, refer to pages 1 and 2 of the bulletin on desirable weight (HG 232-2) and pages 8 through 12 of the *Dietary Guidelines for Americans* pamphlet (HG 232). Say:

- **Why do you think it makes sense to maintain your healthy weight?** (Your body — including the heart and lungs — works harder if you are overweight. This puts a strain on the body. Being too thin has health risks, too.) Accept other student responses.

Point out:

- **Being a healthy weight looks good and helps you feel good. And when you look and feel good, you often feel good about yourself.**
- **For many people, obesity (excess body fat) increases the risk later in life of high blood pressure, heart disease, stroke, the most common type of diabetes, and other medical problems.**
- **What does it mean to "increase the risk"?** (Increase the chance that one or more of these conditions might happen.)
- **Going overboard in losing weight also can cause health problems if followed over a long time.** Continue by discussing eating disorders. Refer to page 2 of the bulletin on desirable weight (HG 232-2).
- **Anorexia and bulimia are serious eating disorders. People with these disorders usually think they look fat, even though they may be thin. And they have an abnormal fear of being fat. Anorexia and bulimia occur most often among teenage girls.**
- **People with anorexia severely restrict the calories and nutrients they consume.**
- **One common trait of bulimia is binging on food, then vomiting or using laxatives. Frequent vomiting and purging can lead to irregular heartbeat and death.**
- **These disorders can result in severe nutrient deficiencies, starvation, chronic disease, and even death.**
- **Being too thin is linked with osteoporosis in women.**

5 Have students explore the calorie concept and

the sources of calories. For background, refer to page 2 of the bulletin on desirable weight (HG 232-2) and page 2 of the bulletin on variety (HG 232-1). Write "calories" on the board. Say:

- **When you see the word "calories," what do you think?** Accept any answer.

Point out:

- **Calories aren't nutrients. They're a measure of energy, just as inches are a measure of distance.** Complete the equation on the board, "Calories = a unit of energy."
- **Calories are neither good nor bad. In fact, your body needs calories. Why?** (For physical activity and to do all your body's work, including heartbeat, breathing, digestion, growth, tissue repair, and others.)
- **Food provides the energy, or calories, the body needs.**
- **The calories in foods depend on their content of three classes of nutrients — carbohydrates, proteins, and fats.** Write carbohydrate, protein, and fat on the board. **Alcohol provides calories, too.**
- **Carbohydrate and protein have 4 calories per gram, fat has 9 calories per gram, and alcohol has 7 calories per gram.** Point out that 28 grams equal 1 ounce. One gram is about the weight of a paper clip.

Write another equation on the board, "Calorie intake = calorie output." Ask:

- **What do you think this equation means?**
- **This is the equation for energy balance. That means to maintain your weight, the calories you eat must equal the calories your body burns.**

On the board write, "Calorie intake > calorie output = ___" and "Calorie intake < calorie output = _____." Ask:

- **Which is the equation for weight gain?** (First.)
- **How would you complete the first equation?** (Calorie intake greater than calorie output equals weight gain.) **When you consume more calories than your body burns, you store the excess as body fat.**
- **How would you complete the second equation?** (Calorie intake less than calorie output equals weight loss.) **When you eat fewer calories than your body burns, you lose weight.**

Point out:

- **Calorie needs aren't the same for everyone.**
- **Some people burn calories at a faster rate than others — their metabolic rate is higher. Teenagers, for example, usually have a faster rate than older adults.**
- **Active people and growing teens burn more calories than inactive people or those who have stopped growing.**

6 Using food labels from their time capsules, have students find the calories in various foods. Explain:

- **Almost every food and beverage has a calorie value. Some "cost" more — have more calories — than others.**
- **The nutrition label on your food packages shows the calories in one serving. Find it. Note the serving size. We often eat more or less of a food than one serving.**
- **As a class, arrange your food packages from least to most calories per serving.**
- **What foods have the least calories? What foods have the most? Are the serving sizes realistic?**

Point out:

- **From the information on the label, you can figure out how many calories come from protein, carbohydrate, and fat. Carbohydrate and protein have 4 calories per gram. Fat has 9 calories per gram.**

Have students do the multiplication to see how the calories per serving compare to the amount shown on the label. (The total might be slightly different due to rounding of the numbers.) Then ask:

- **In foods such as salad oil, mayonnaise, and chips, where do most calories come from?** (Fat.)
- **Because high-fat foods are often high in calories, eat them in moderation to promote health and avoid too many calories.**

7 Have students identify the qualities of a healthful, effective diet to control weight:

- **Many weight loss diets tell you what you can't eat. Instead focus on what you can — and need — to eat to stay healthy.**
- **The first Dietary Guideline provides the best guideline for a diet to lose, gain, or maintain weight. What is that Guideline? (Eat a variety of foods.) That includes eating enough — but not too many — servings from each of the five major food groups to get the nutrients you need.**
- **Cut back on foods from the fats, oils, and sweets group, which provide calories but few nutrients.**
- **Don't try to lose or gain weight too fast. A steady loss or gain of 1/2 to 1 pound a week until you reach your goal is generally safe.**

Have students brainstorm a list of low-calorie foods from each of the five major food groups which meet this criterion. Refer to page 4 of the bulletin on desirable weight (HG 232-2) for ideas.

8 Have students evaluate their eating habits to see where their calories come from and why. Distribute the self-test "My Eating Habits: Some Clues to Calories?" Give students time to complete it. Then discuss students' responses:

- **Look at the boxes you checked for "what" and "how much" you eat. What clues do your**

answers give about your sources of calories?

- **Look at the boxes you checked for "when, where, and why" you eat. What else does this say?** Help students understand that these factors may affect what and how much they eat, and ultimately how many calories they consume.
- **What do your food habits suggest about the calories you eat?**
- **On the bottom of the self-test, write any changes you might make to improve your diet or to help increase or decrease calories in your diet.** This might include foods that are low in fat and added sugars, such as fruits, vegetables, whole grains, dairy products, and lean meats.

Point out that students who need to gain weight should eat more food from the five major food groups and still watch fat and sugars. Refer to the discussion of the self-test on page 3 of the bulletin on desirable weight (HG 232-2) for ways to modify "problem" eating habits.

9 Quickly review the lesson. Ask:

- **Why is it smart to maintain a healthy weight?** (To look and feel good; to feel good about yourself; to avoid some chronic health problems later in life.)
- **How can you maintain a healthy weight?** (Balance calorie intake with calorie output.)
- **What three qualities describe the best eating plan for keeping a healthy weight?** (Variety, balance, moderation.)
- **As we learn more about maintaining a healthy weight, we'll learn more about the importance of exercise.**

Class Period 2:

10 For this class period, focus on exercise as part of fitness and weight maintenance. Refer to pages 7 and 8 of the bulletin on desirable weight (HG 232-2) as background. Say:

- **Are you a "remote control junkie"? If so, you need to start exercising!**
- **Exercise is a key to fitness, weight loss, and weight maintenance.**
- **Eating fewer calories is one way to shed extra pounds. Using more calories through physical activity also helps you lose weight and keep it off.**

11 Show that some exercises burn more calories than others. Start walking slowly in place, holding a celery stalk. (Optional: You may have a student do this while you talk.) Say:

- **For each minute I walk slowly, I'll burn 3.5 calories in exercise.**
- **This celery stalk has about 7 calories. How long must I walk to burn the calories in the celery?** (2 minutes.)

Put the celery stalk down. Say:

- **These ten chips have 105 calories. How long must I walk — nonstop — to burn these calories?** (About 30 minutes.)
- **How might I burn these calories faster?** (Walk faster; exercise more strenuously.)

Walk in place briskly. Say:

- **Walking faster means I can burn more calories in the same amount of time. In fact, I'll cover more distance. Brisk walking burns about 5.5 calories per minute.**
- **Walking fast, how long will it take to burn the calories in the chips?** (About 19 minutes.)
- **What does this tell you?**

Point out:

- **The number of calories burned in exercise depends on three things — the intensity of activity, the length of that activity, and body weight.**
- **Which burns more calories — playing non-stop basketball for 15 minutes or playing non-stop baseball for 15 minutes?** (Basketball.) **Why?** (Basketball is more intense, requiring almost constant movement, but baseball does not.) **What other activities usually expend many calories?** (Running, hockey, soccer, swimming — "crawl.") **What activities usually expend few calories?** (Watching television, shopping, bowling.)
- **Which burns more calories — non-stop aerobic dancing for 15 minutes or for 30 minutes?** (Aerobic dancing for 30 minutes.) **Why?** (The longer you exercise, the more calories your body uses.)
- **Who burns more energy, a lighter or a heavier person?** (Heavier person burns more energy if he or she puts forth the same amount of effort as a lighter person.) **Why?** (It takes more energy for a heavier person to move.)

Apply an understanding of calorie expenditure to weight management. Review the concept of energy balance. Ask:

- **What does energy balance mean?** (To maintain weight, calorie intake should equal calorie output.)
- **How would you tip the calorie equation so you lose weight?** (Use more calories than you consume.)
- **How might you do that through exercise?** (Do non-stop exercise for longer periods of time. Exercise more often. Increase the intensity of exercise.)

12 Brainstorm a list of benefits of exercise. Ask:

- **Why is it smart to exercise regularly?** Emphasize:
- **Regular exercise helps you maintain weight.**
- **Increasing physical activity and decreasing calorie intake is the best approach for weight loss.**
- **Exercise helps make your body fit.**
- **Exercise helps develop lean muscle, which, in turn, contributes to a good appearance.**

- **If you're already lean, exercise is still important for fitness. Just having a healthy weight doesn't make you fit!**
- **Regular exercise can help relieve tensions that often lead to overeating.**

13 Have students apply what they've learned about diet, exercise, and weight control. Distribute the worksheet "Body Talk." Have them imagine that "Body Talk" is a television talk show on fitness. After reading about the studio audience, have them write two additional case studies with questions. Give them time to prepare advice for each case study to share in class. (Optional: Have students present "Body Talk" in class as an interview show or an in-school video broadcast.) These points might be included in the discussion:

• **Mario:** Healthy weight gain or loss is gradual... 1/2 to 1 pound a week. Whether it's for weight gain or loss, the diet should be balanced and varied, representing the five major food groups. To gain weight, Mario should get most of his extra calories from nutrient-dense foods, rather than from fats, oils, and sweets. Extra weight put on very fast is often body fat, not muscle.

• **Kelly:** Kelly needs to control how much she eats at work — or find a job where she doesn't come in contact with food. Lower-calorie foods at work would help her control weight, such as milk instead of a shake, a small rather than a large burger, and a plain baked potato rather than fries. Somehow, Kelly needs to include exercise in her daily life, perhaps walking rather than snacking during her work break.

• **Jeremy:** Most of Jeremy's snacks should be nutrient-dense, rather than calorie-dense foods. Although Jeremy isn't overweight now, regular exercise would help him develop lean muscle rather than body fat. A sedentary life isn't heathful.

• **Krista:** Krista may never be as thin as a model since she has a larger body frame. This image is unrealistic for many people. Yo-yo dieting, not a healthy way to lose weight or stay slim, may result in a lack of needed nutrients. Following one fad diet after another doesn't keep weight off in the long run. A varied, balanced diet with low-calorie choices and plenty of exercise is the best approach.

14 Have students make a private contract for themselves to be physically active. Ask:

- **Do you get enough exercise to keep fit — and not fat?**
- **How might you put more exercise in your daily routine?** (Walk or bicycle instead of drive, use stairs instead of the elevator, stand rather than sit, others.)

Distribute the self-test "My Plan of ACTION." Have students identify physical activities that are best for them, then make a contract with themselves to take action and get (or keep) fit. Give students several minutes to complete and sign the contract. Point out:

- **This is a contract you made with yourself. Put it somewhere as a daily reminder. Or find a buddy to co-sign it and give you support.**
- **The goal — fitness — is the same for everyone, but you can achieve that goal in many different ways with many different activities.**
- **Besides exercise, what other way can you maintain your healthy weight?** (Eating a varied, balanced, and moderate diet.)
- **Your promise to exercise should be for a lifetime — and this contract is meant for your teenage years. You need to stick with it and exercise regularly to keep healthy and in shape!**

Encourage them to evaluate their action plan every week for 4 weeks.

Learning More...

"Healthline." Have students write a feature story for the "Healthline" newsletter. The story should 1) offer advice to teens about eating and exercising to maintain healthy weight, or 2) present the dangers of current fad diets. Have students save the feature for Lesson 9 to edit into the completed newsletter.

"The Great Calorie Burn-Off." Using food labels or food composition tables in textbooks or in *Home and Garden Bulletin Number 72* from the Government Printing Office, have students find the calories in five favorite snack foods. Have them estimate how long it takes for the body to burn these snack calories at various levels of activity. Make copies of the chart, showing the calories burned for various activities, from page 12 of the *Dietary Guidelines for Americans* pamphlet (HG 232); explain that this chart is meant for a healthy, 175-pound man and 140-pound woman. (Optional: As homework, have them demonstrate what they learned; e.g., eat a small cookie, then walk off its calories.)

"Judging Fad Diets." Some body-conscious teens follow one fad diet after another. Have students find out about current fad diets — from books, magazines, and/or friends. Have them judge these diets according to recommendations from the food groups. Ask: Do these diets offer variety? Balance? Moderation? Is exercise important? Is this a diet you could follow and enjoy? Why or why not? Refer to the statement on fad diets on page 2 of the bulletin on desirable weight (HG 232-2).

"The Ups and Downs of Calories." Have students do calorie math by creating and solving problems like these:

- An athlete thinks losing 5 pounds may improve

his performance. Losing no more than 1/2 to 1 pound a week makes good health sense. A pound of body fat provides 3,500 calories. How many fewer calories should he/she eat each day to lose 5 pounds of body fat in 5 weeks? (500 calories.)

- Suppose you begin snacking on one 12-ounce soft drink (150 calories) and a 1-1/2 ounce chocolate bar (225 calories) each day. But you don't change any other eating or exercise habits. A pound of body fat provides 3,500 calories. How many pounds would you gain in about 4 weeks? (3 pounds.)

"You Can Be Too Thin." Display magazine pictures of very slim people. Discuss the obsession many have with being thin. Ask: How does a preoccupation with slimness influence behavior? Include points mentioned in "Diet Cautions" on page 2 of the bulletin on desirable weight (HG 232-2).

"Keep-in-Shape Greeting Card." Have students create a greeting card with smart diet and exercise advice. They might send it to a close friend or relative who has asked for moral support for losing or maintaining a healthy weight.

Fitness...On the Move

High school wrestlers should compete in a weight class that matches their own healthy weight. Crash dieting or restricting fluids to compete in a lower weight class can interfere with performance, may result in dehydration or nutrient deficiencies, and may be life-threatening. On the other hand, bulking up with excess calories to compete in a higher weight class may result in too much body fat, not more muscle. A steady weight gain or loss of 1/2 to 1 pound a week is a safer way to reach a goal.

ACTIVITY SHEET 3 FOR LESSON

BODY TALK

"**Body Talk**" is a weekly fitness program — with teens talking to teens — about getting and keeping fit for a lifetime.

- **This week's topic — Shaping Up!**
- **This week's guest — Fit N. Smiling**

As an expert on teenage fitness, Fit N. Smiling answers questions from the studio audience about losing, maintaining, and gaining weight through smart eating and regular exercise!

- **Our studio audience — Teenagers**

The studio audience asks questions about keeping fit for a lifetime.

- Imagine that you are this week's guest — health expert, Fit N. Smiling. What advice would you give each of these teens?
- At the bottom of the page, describe two more members of the studio audience — perhaps one is like you. Prepare questions they might ask about losing, gaining, or maintaining weight. If you need more space, continue on the back.

◆ **Kelly:** "I've got the greatest after-school job! I work at The Great Food Show. It's the fast food place where everyone hangs out, and my meals (all I want to eat) are free. At break time I can have fries and a soda or shake, too — no charge. Great, huh? Maybe not, I can hardly handle the temptation of free food. I've put on 10 pounds since I started to work there. And people are starting to tease me. It's embarrassing. But I really need this job! Do you have any suggestions?"

◆ **Mario:** "They call me the computer whiz — the brain. And it's true. My idea of a great afternoon is spending time with a bunch of computer hackers — and a well-stocked refrigerator. I can handle it. My weight is right on target — 150 pounds and 5'9" tall. I'm fit, right, because I'm not overweight. Sports aren't my thing — I don't exercise! Is that okay? Am I really in shape? What do you think I should do?"

◆ **Jeremy:** "I'm going out for football in a couple of weeks. But I need to weigh more if I want to be a good lineman on the team. With a good 10 more pounds, I could be a great tackle! Is it okay to bulk up that fast? I can always go on a starvation diet later to lose that weight when football season's over. What do you think?"

◆ **Krista:** "I'm a dancer — practice every day for two or three hours. Still I'm not slim enough. You know those models in the magazines and those dancers you see on TV? They're thin — they look great! That's how I want to look, but I've got bigger bones than they do. I'm constantly on one weight-loss diet after another. I lose a little, then I gain it right back, then lose again. Can I ever really look like them, really? What do you think? What should I be eating?

Lesson 4

Chews...When You Eat Out

Choose a Diet Low in Fat, Saturated Fat, and Cholesterol

Objectives...

After completing the lesson, students will be able to —

- state two or more reasons for avoiding too much fat, saturated fatty acids, and cholesterol,
- identify sources of fat, saturated fatty acids, and cholesterol,
- explain the difference between dietary cholesterol and blood cholesterol,
- estimate how often they eat higher-fat foods, and
- describe ways to moderate the fat and cholesterol content of food choices.

Key Points...

1. The body needs a small amount of dietary fat. Fat is a source of energy; it provides more than twice the calories of an equal amount of carbohydrates or protein. Fat also helps the body absorb and use fat-soluble vitamins from food.

2. The body needs some cholesterol. Dietary cholesterol is present in food. However, the body also manufactures cholesterol and can make all of the cholesterol needed by the body.

3. Populations with diets high in fat have more obesity and certain types of cancer. Higher levels of saturated fat and cholesterol in the diet are linked to increased risk for heart disease. Risk can also be increased by high blood pressure, cigarette smoking, diabetes, a family history of premature heart disease (before age 50), and being a male.

4. An amount of total fat that provides 30 percent or less of calories is suggested. The grams of fat someone should consume depend on the calories needed for healthy weight. Less than 10 percent of calories from saturated fat is also suggested.

5. Foods differ in the amount and kinds of fat they contain. All fats contain both saturated and unsaturated fatty acids. Fat in animal products is the main source of saturated fat in most diets.

6. Butter, margarine, shortening, and oil are obvious sources of fat. Some foods — meat, eggs, milk, and cheese — naturally contain some fat; they are also important sources of high-quality protein and certain vitamins and minerals. Lowfat alternatives are lean meat and lowfat milk and cheese.

7. Dietary cholesterol comes from animal products, not plant products. Eating less fat from animal sources helps lower cholesterol as well as total fat and saturated fat in the diet.

8. A diet low in fat, saturated fat, and cholesterol includes plenty of vegetables, fruits, grain products, lean meats, fish, poultry without skin, lowfat dairy foods (most of the time), and only sparing amounts of fats and oils.

Materials for Learning...

Class Period 1:

cooking oil (about 1 cup)
10 cooked french fries
cheeseburger (made with a 3-ounce cooked beef patty, 1 ounce cheese, and 1 tablespoon mayonnaise on bun)
12-ounce vanilla milkshake (made with 1 cup whole milk and 1/2 cup vanilla ice cream)
(optional) fast-food sack
measuring spoons
6 small, clear cups
2 plates
1 12-ounce cup
chalkboard, chalk; *or* poster board, marker
"What's Your Fat Score?" self-test on page 57
students' 7-day food records from Lesson 2

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- Measure 1/4 cup + 3-1/2 teaspoons cooking oil into a small, clear cup. Have 6 other clear cups handy.
- Place fries, cheeseburger, and milkshake in a fast-food sack (optional) or on separate plates.
- Duplicate "What's Your Fat Score?" for each student.
- Using information from pages 6 and 7 of the bulletin on fat (HG 232-3), make a chart on the chalkboard or poster board. Show the serving size and the fat, saturated fatty acids, and cholesterol content of these foods: regular ground beef patty, lean ground beef patty, chicken with skin, chicken with no skin, egg yolk, egg white, french fries, baked potato, american cheese, mozzarella cheese, whole milk, 2-percent lowfat milk, skim milk, vanilla ice cream, white bread, biscuit, mayonnaise, butter, margarine, orange.

Class Period 2:

"CHEWS" activity sheet from page 31
paper, pencils for students

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- Duplicate "CHEWS" for each student.

Notes to You...

- This lesson might be presented with a unit on chronic or cardiovascular disease or in a unit on the circulatory system.
- Before the lesson, review the terms defined on page 2 of the bulletin on fat (HG 232-3): fat, fatty acids, saturated fatty acids, cholesterol.
- If you prefer, use pictures or wrappers/packaging of the fast-food meal for the lesson introduction instead of the foods themselves.
- If you use real foods as lesson props, discard them after instructing the last class.
- Have students save the "CHEWS" activity sheet for "Learning More..." activities in Lesson 7.

Lesson Plan...

Class Period 1:

1 Start the lesson by exploring the amount of fat in a typical fast-food meal. Display 1/4 cup + 3-1/2 teaspoons of oil in a clear cup. Ask:

- **Who would eat this for lunch?**
- **Actually, many people eat at least this much fat with their lunch or dinner one or more times a week. How?** (Fat is present in many foods we eat even though we can't see it.)
- **What kind of meal might have at least this much fat?**

Beside the oil, display a fast-food meal — 3-ounce cooked beef patty and 1 ounce of cheese on a bun, 10 fries, and a 12-ounce vanilla milkshake. (Optional — to add drama to the lesson, pull items out of fast-food sack one by one.) Say:

- **These foods provide a variety of nutrients needed for health.**
- **This fast-food meal also has at least this much fat.**
- **Where do you think fat comes from in this fast-food meal?**

Create a display. As students identify each food, have them measure the oil from the clear cup into several small, clear cups to equal the fat in each food. Say:

- **Ten fries = 1 medium potato + 2 teaspoons of fat.** Place 2 teaspoons of oil beside the fries. **An order of fries often is larger than this.**
- **One ounce of cheese = 1 cup skim milk + 2 teaspoons fat.** Place 2 teaspoons of oil beside the cheeseburger.
- **Three ounces of cooked, regular beef patty have 4 teaspoons of fat.** Place 4 teaspoons of oil beside the cheeseburger.
- **One hamburger bun has 1/2 teaspoon of fat.** Place 1/2 teaspoon of oil beside the cheeseburger.
- **A 12-ounce vanilla milkshake (made from 1/2 cup of vanilla ice cream and 1 cup of whole milk) = 1-1/3 cups skim milk + 4 teaspoons fat.** Place 4 teaspoons of oil in front of the milkshake.
- **One tablespoon of mayonnaise or dressing on a cheeseburger adds even more fat.** Place 3 teaspoons oil beside the cheeseburger.
- **What does this display say about food?** (A fast-food meal may be high in fat. Fat is often hidden in food.) Point out that meals like this might be eaten occasionally; however, eaten frequently, they may provide too much fat.
- **Today we'll learn about another Dietary Guideline — "Choose a diet low in fat, saturated fat, and cholesterol."** Write this Guideline on the board or large paper.

2 Review with students the definitions of fat, cholesterol, and saturated fatty acids from page 2 of the bulletin on fat (HG 232-3). Say:

- **Fat is a nutrient which comes from foods of plant and animal origin.**
- **Foods differ in the amount and kinds of fat — saturated, polyunsaturated, and monounsaturated fatty acids — they contain.**
- **Fats are made of several kinds of fatty acids. One kind, called saturated fatty acids, is found mainly in fats of animal origin. Tropical oils (coconut, palm kernel, and palm oils) and hydrogenated fats provide smaller amounts of saturated fats.**
- **Cholesterol is a fat-like substance found in human and animal cells. Foods from animal sources, such as meat, poultry, egg yolk, and whole milk products contain cholesterol.**

3 Discuss the link between fat, saturated fatty acids, cholesterol, and health. For background refer to pages 1 and 2 of the bulletin on fat (HG 232-3) and pages 13 through 17 of the *Dietary Guidelines for Americans* pamphlet (HG 232). Explain:

- **Fat is necessary in a balanced diet. It provides energy and helps your body absorb and use fat-soluble vitamins from food.**
- **Fat is a concentrated source of calories, providing more than twice as many calories per gram as protein and carbohydrates do.**
- **Cholesterol is needed to form hormones, cell membranes, and other body substances. Because the body can make it, though, you don't need to get cholesterol from food.**

Clarify the difference between dietary cholesterol and blood cholesterol. Say:

- **Dietary cholesterol is present in foods of animal origin. Blood, or serum, cholesterol is a substance that circulates in your bloodstream. The cholesterol in your blood comes from both the cholesterol you eat (dietary cholesterol) and that which your body makes.** Other dietary compo-

nents also affect blood cholesterol levels — see below.

Discuss high-fat, high-cholesterol diets as risk factors for certain diseases. Say:

- **We've discussed risk factors. What is a risk factor?** (A condition or characteristic that may increase the chance that something harmful will happen.)
- **Diet may increase the chance for certain diseases.**
- **The way diet affects blood cholesterol varies among individuals. High blood cholesterol levels increase the risk of heart disease in some people.**
- **Blood cholesterol does increase in most people when they eat a diet high in saturated fatty acids and cholesterol, and excessive in calories. Of these, saturated fatty acids in the diet have the greatest effect; dietary cholesterol has less.**
- **Many of us eat more fat and cholesterol than we need.**
- **Eating a diet low in fat, especially saturated fatty acids, over a lifetime may decrease your chance of having a premature heart attack (before age 50). Cigarette smoking, high blood pressure, diabetes, a family history of premature heart disease, obesity, and being a male increase the risk.**
- **Fat has more than twice the calories as the same amount of carbohydrates or protein. When you eat more calories than you need for growth, maintenance, and activity, you gain weight.**
- **What you eat now may not affect your health today, tomorrow, or even a year from now — but over the long run, your food choices may influence your health, perhaps 30 years from now.**

4 Have students evaluate fat in their diets. Distribute the self-test "What's Your Fat Score?" Have students use their 7-day food records, completed earlier, as their reference. Say:

- **Like most people, you probably don't think about fat when you order a fast-food meal...or when you eat anything else. But you may eat more high-fat foods than you think!**

Give students time to complete the self-test. Explain any terms they don't know, such as "heavily marbled" (with visible fat between lean meat tissues), "whole milk," "high-fat cheeses," and "rich sauces and gravies." Discuss students' responses. Point out:

- **If most of your check marks are in the first two columns, good for you. Give yourself a pat on the back. Your diet is probably lean — you may be, too!**
- **If most of your checks are in the last two columns, watch out! You may be eating too much fat. Cut down on these foods to keep healthy.**

5 Have students use the chart made before class to compare the fat, saturated fat, and cholesterol content in the fast-food meal. Point out that two slices of bread equal one bun and that the milkshake is made with 1 cup of whole milk and 1/2 cup of vanilla ice cream. (Note: For more information, refer to pages 6 and 7 of the bulletin on fat — HG 232-3). Say:

- **You already know that these foods contain fat. Which item has the most fat in one serving?** (Beef patty with 17 grams or about 4 teaspoons of fat, the milkshake with 15 grams or about 4 teaspoons of fat, and the tablespoon of mayonnaise with 11 grams or about 3 teaspoons of fat.)
- **Which food in the meal had very little fat?** (Bun.)
- **Which foods contain cholesterol?** (Beef patty, cheese, milkshake, mayonnaise.) Explain that mayonnaise is made with egg yolks.
- **Which foods don't contain cholesterol?** (French fries — unless they are fried in animal fat — and bun.)
- **What conclusions might you draw about cholesterol in food?** (Cholesterol is found in foods of animal origin, not plant origin.)
- **Some fast-food hamburgers are made from regular ground beef, not lean ground beef. But lean ground beef has less total fat than regular ground beef. How does the cholesterol compare?** (The regular and lean beef have a similar amount of cholesterol.) **What can you conclude?** (Cholesterol is found throughout the meat.) Explain that both the fatty and the lean part of meat, poultry, and fish have cholesterol.
- **In some restaurants you can order a chicken sandwich (broiled or roasted) instead of a hamburger. How would the fat and cholesterol compare?** (Total fat and saturated fatty acids would be less, but the cholesterol is about the same.) **Fast-food chicken, however, is often fried instead of broiled or roasted. The fat actually would be higher in the fried chicken, but the cholesterol would be about the same.** Point out that most poultry fat is just under the skin, so chicken without the skin has even less fat; but restaurants usually don't prepare it that way.
- **Suppose you ordered one 8-ounce carton of whole milk, instead of a 12-ounce shake. How would that change the amount of cholesterol?** (33 rather than 63 milligrams.) **Total fat?** (8 rather than 15 grams.) **Saturated fatty acids?** (5 rather than 9 grams.) Point out that all are cut by about half.
- **Why did the fat and cholesterol content go down?** (Smaller serving size, ice cream is higher in fat.)
- **If you could order 8 ounces of 2-percent lowfat milk instead of the shake, how would that change the amount of cholesterol?** (18 instead of 63 milligrams.) **Total fat?** (5 rather than 15 grams.) **Saturated fatty acids?** (3 rather than 9 grams.)

- **What conclusion can you draw about lowfat milk products?** (They have less fat, saturated fatty acids, and cholesterol.) Point out that the nutrients — other than fat — in skim milk, 2-percent lowfat milk, and whole milk are about the same. All types of milk are excellent calcium sources.
- **What if you were at home? You could put lowfat cheese, such as part-skim mozzarella, rather than american or cheddar cheese on a hamburger. How would that change the fat, saturated fatty acid, and cholesterol content?** (All go down.) **Why is there a difference?** (Part-skim mozzarella is made partly from skim milk.) Point out that not all mozzarella is part-skim.
- **Suppose you could spread either 1 tablespoon of mayonnaise, butter, or margarine on the bun. Which would add the most fat?** (All have 11 grams of fat.) **Which has the least cholesterol?** (Margarine has none.) **Why doesn't margarine have cholesterol?** (It's not of animal origin.) **Why does regular mayonnaise have cholesterol?** (It is made with egg yolks.) **Which has more saturated fatty acids — butter or margarine?** (Butter.)

Point out:

- **Foods of plant origin, such as margarine, usually have less saturated fatty acids than foods from animal sources.** Note to teacher: The exceptions are the saturated fatty acids from tropical vegetable oils.
- **Foods with a higher percentage of saturated fatty acids tend to be more solid at room temperature.**
- **Margarine is made from hydrogenated vegetable oils. Hydrogenation makes oil solid at room temperature.**

Continue the discussion:

- **Suppose that for breakfast you ordered a fast-food egg-biscuit sandwich and orange juice. One orange gives about 4 ounces of juice. How does the fat content of the egg, biscuit, and juice compare?** (The egg and biscuit have about the same amount. Orange juice has almost none.) Note to teacher: A fast-food biscuit might be higher in fat due to preparation methods. **Which item has the most cholesterol?** (Egg.) **Where does the cholesterol come from?** (Yolk.) Have students compare the cholesterol in an egg with other foods.

Point out:

- **Although they contain cholesterol, eggs can be enjoyed occasionally — about four eggs per week.**
- **Most people can eat some higher-fat foods if the overall diet is low in fat.**

6 To check for knowledge of fat and cholesterol at the close of the lesson, use the 8-item true-false quiz on page 3 of the bulletin on fat (HG 232-3). Refer to pages 6 and 7 for the specific fat and cholesterol content of foods named in the quiz.

Class Period 2:

7 Review the previous day's lesson:

- **Yesterday we talked about the fat, saturated fatty acids, and cholesterol in a typical fast-food meal. What could you order instead to lower fat and cholesterol?** (Answers might include: order whole or lowfat milk instead of a 12-ounce shake; instead of fries, order a plain baked potato or a small tossed salad with low-calorie dressing; have a regular burger instead of a deluxe-sized burger; use less or no mayonnaise and dressings.)
- **Why are health experts concerned about high-fat diets, especially those high in saturated fat and cholesterol?** (They may increase the risk of heart attacks, strokes, and other health problems.)

8 Have students think about their "eating out" habits and how their selections affect their fat intake. Say:

- **On average, Americans in 1985 ate more than one in five meals away from home.**
- **How often do you eat away from home — several times a day, once a day, several times a week, occasionally, rarely? This includes eating at school.** Explain that the more often they eat out, the more their eating-out food choices affect total diet and health.
- **Besides the school cafeteria, where do you usually get food you eat away from home — fast food places, vending machines, sit-down restaurants, sandwich shops, snack bars, convenience stores?** Explain: **Where you eat affects your food options. Sometimes it's hard to follow the Dietary Guidelines when you eat where the menu is limited.**
- **What do you usually order when you eat out?** (Answers might include hamburgers; deep-fried foods such as chicken, fish, or fries; pizza; salads; salty snack foods; soft drinks and shakes; ethnic foods; soups; broiled meats, fish, poultry; lightly seasoned vegetables.) Explain: **If you typically choose fried foods, creamy sauces, and rich desserts, your diet may be high in calories, fat, or both.**

9 Using a restaurant menu, have students learn how to identify lower-fat foods. Distribute the activity sheet "CHEWS." Discuss:

- **We've already talked about fast foods. Now let's talk about other foods we eat away from home. This is a typical restaurant menu. Use it to "order" a meal you would enjoy. Write your order on paper.** Give students time to study the menu.
- **The way food is prepared affects the fat and**

calorie content. This menu gives many clues which suggest which foods are higher and lower in fat.

- **Ingredients in some foods are high in fat. Some food is cooked with fat or oil. Which menu terms indicate that the food might be higher in fat? Circle the terms.** Write answers on the board: breaded, buttered, creamy, deep-fried, fried, hollandaise (sauce with eggs and butter), pan-fried, pastry, rich, with gravy. Point out cooking methods can make nutritious foods higher in fat. To review Lesson 2, ask: **What food group does each food belong in?**
- **Some menu items are cooked with low-fat ingredients or don't use fat in cooking. Which terms indicate the food might be lower in fat? Underline those terms.** Write answers on the board: boiled, broiled, roasted, steamed, stir-fried. (Stir-fried means cooked fast, usually in only a little fat; other frying techniques use more fat.) Point out that the word "light" doesn't always refer to low-fat or low-calorie.

10 Using several menu items, discuss how fat content also affects calories in food. Explain:

- **Often you can lower the fat and calories in your meals by the foods you choose.**
- **Fat has 9 calories per gram, compared to 4 calories per gram from carbohydrate and protein.**
- **You can find out how many calories come from fat by multiplying the grams of fat times 9 calories per gram.**

Have students calculate the differences in calories from fat by comparing these items on the CHEWS menu. Write these facts on the board:

1 cup broth (0 grams of fat) or 1 cup New England (creamed) clam chowder (7 grams of fat)
1 slice cheese pizza with vegetable toppings (5 grams of fat) or 1 slice cheese pizza with "everything" (12 grams of fat)
1 dinner roll (2 grams of fat) or 1 croissant (12 grams of fat)
3 ounces cooked chicken breast without skin (3 grams of fat) or 3 ounces fried, breaded chicken breast with skin (11 grams of fat)

11 On the CHEWS menu, have students identify the lower-fat choices. Say:

- **Today consumers want nutrition information so they can choose food wisely. In some restaurants, symbols tell which menu items are lower in fat. Identify the lower-fat foods on the "CHEWS" activity sheet.** Give students time to label the menu.
- **What items did you identify?** (Fresh Carrot-Zucchini-Tomato Plate, Chilled Melon, Fresh Shrimp, Beef Consomme, Spinach Salad, Chicken Stuffed Pockets, Chicken Teriyaki, Fish of the Day (broiled, poached, or baked), Beef en Brochette, Pasta with Steamed Vegetables, House Salad, Stir-Fried Vegetable Medley, Broiled Tomato Half, Boiled Herbed Potatoes, Baked Potato, Fresh Berries, Frozen Yogurt, Lowfat Milk, Chilled Apple Cider, Sparkling Water, Iced Tea, Soft Drinks, Coffee.)
- **What conclusions can you draw?** Refer to page 8 from the bulletin on fat (HG 232-3) for tips on avoiding too much dietary fat.
- **How would you evaluate the meal you ordered at CHEWS? Did you choose a varied meal from the food groups? Did you choose a higher- or lower-fat menu? What changes might you make for a varied, lower-fat diet?** Discuss students' responses.

12 Divide students into small groups. Have each group pretend to be owners of a new fast-food restaurant. Have them: 1) name the restaurant, 2) create an appealing menu with lower-fat choices, and 3) prepare an advertisement on the benefits of the restaurant's lower-fat menu. This might be a homework lesson to present later or to display in the classroom.

Learning More...

"Healthline." Have students write a "Food Page" article about fat and cholesterol for their "Healthline" newsletter. Have them cover both the reasons and tips for avoiding too much fat, saturated fat, and cholesterol in the diet. Have students save the column for Lesson 9 to edit into the completed newsletter.

"Fat, Cholesterol, and Your Arteries." Explain that in some people, fat deposits build up on artery walls. High-fat (especially saturated fat), high-cholesterol diets, along with cigarette smoking, heredity, and lack of exercise, are associated with this buildup. Heart attacks occur when there is a blockage in the coronary artery so blood, which carries oxygen to the heart, can't get through. Contact a physician, registered dietitian, or nurse for pictures which show how fat deposits build up on artery walls. Ask: what message does this give you about taking care of your arteries now, as a teenager?

"Blood Cholesterol — How High Is High?" Review the difference between dietary and blood cholesterol. Refer to page 6 from the bulletin on fat (HG 232-3) which indicates that blood levels under 200 milligrams of cholesterol per deciliter of blood are considered desirable for adults. Encourage students to have their blood cholesterol checked by a physican, and have them encourage their parents, too. Invite a

physician, registered dietitian, or nurse to speak about high blood cholesterol as a heart attack risk factor.

"How Much Is Too Much?" Explain that many Americans eat more calories from fat than they should and that many health experts recommend no more than 30 percent of calories from total fat (and less than 10 percent of calories from saturated fats). Using their 7-day food records and food composition tables, have students total the grams of fat and the calories for 1 or 2 typical days, then calculate the percentage of calories provided by fat. (To calculate, use this equation: percent calories from fat = calories from fat/total calories x 100.) For student reference, write the chart from page 2 of the bulletin on fat (HG 232-3) on the chalkboard. Using their totals, discuss whether or not their diets provided 30 percent or less of calories from fat. If the percentage is higher, have them identify ways to trim fat. Note: Active people who need more calories, such as athletes, can consume a diet with more total fat, but the percentage of calories from fat should still be 30 percent or less.

"The Keys to Moderation." Create a bulletin board, entitled "The Keys to Moderation," using information on page 3 of the bulletin on fat (HG 232-3). The first key will remind students to moderate their fat, saturated fat, and cholesterol intake. With student help, create other "keys" later such as one on moderating sugars (Lesson 6) and sodium (Lesson 7).

"Tradeoffs." Explain that "avoiding too much fat" doesn't mean cutting out any foods. Tradeoffs are like budgeting. There's just so much fat to "spend." The diet can provide all the nutrients needed without "spending" too much on fat, or higher fat foods can be balanced with lower fat foods. Have students build a display of "Milk Tradeoffs" and "Meat Tradeoffs," comparing the amount of fat in various foods. Refer to the tradeoff charts on page 5 of the bulletin on fat (HG 232-3). Have them identify tradeoffs they might make on their 7-day food records.

"Fat on the Label." Use ingredient labels on similar food products, such as mayonnaise, salad dressing, and reduced/low-calorie dressing, to identify various fats. Classify products as higher or lower in fat and saturated fatty acids. For background, refer to the information on page 4 of the bulletin on fat (HG 232-3).

"Shopping Mall Snacks." Many teens snack and spend leisure time at shopping malls. But the calories and fat in mall snacks add up! Have students send out the message — through posters, bumper stickers, school newspapers, etc. — which tells how these snacks can fit in the diet. Have students add to this list:

	Calories	Fat (in grams)
frozen yogurt (1 cup)	210	4
ice cream cone (1 dip)	190	9
unsalted, plain popcorn (2 cups)	60	trace
salted, buttered popcorn (2 cups)	210	16
soft pretzel with cheese	275	8
chocolate chip cookie, large	190	8
hotdog with mustard, relish, and onion	265	15
bran muffin, large	190	6
danish pastry	335	16
mixed nuts, 1/4 cup	225	21
pizza slice, 1/8 of a 15-inch cheese pizza	255	10
french fries, 10 salted	160	8

"Fitness Fare." Some traditional and fast-food restaurants provide nutrition information with their menus for health-conscious consumers. Have students ask restaurants or fast-food establishments for this information. Then, in class, compare the menus for lower fat choices.

Fitness...On the Move

What do your athletes want on their training table? A juicy 12-ounce steak, eaten regularly, may provide too much fat. (And contrary to popular myth, extra protein doesn't build muscle or enhance performance.) The 59 grams of fat in a 12-ounce portion of fatty meat provide 530 calories! The same size portion of lean meat has 26 grams of fat with 234 calories from fat. Encourage your athletes to eat lean meat (for example, sirloin, loin, and round cuts of beef and pork) with fat removed, *and* to cut portion size. A teenage athlete — like other teens — needs only 5 to 7 ounces of lean meat or meat alternates *a day*. This means about two 3-ounce portions.

ACTIVITY SHEET FOR LESSON 4

CHEWS MENU

THE PLACE FOR AWESOME EATING!

CHEWS lets you choose — from our varied menu items, made fresh each day. Can you identify CHEWS' tasty, lower-fat menu items? Circle YOUR choice.

COOL STUFF

Can't Decide Salad Bar
...offered as "all you can eat"

Spinach Salad with Sliced Mushrooms
...tossed lightly with vinaigrette dressing and parmesan

Tuna Sandwich
...served on a fresh-baked croissant or whole-wheat roll

Chicken Stuffed Pockets
...stuffed pita bread with garden fresh vegetables, tender chicken, and light yogurt dressing

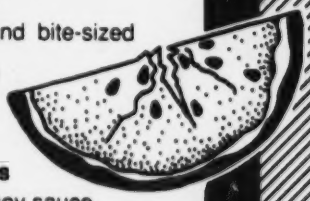
TAG ALONGS

Creamy Garden Coleslaw
House Salad with Dressing on the Side
Stir-Fried Vegetable Medley
Broiled Tomato Halves with Basil
Deep Fried Onion Rings
Broccoli with Hollandaise Sauce
Buttery Corn-on-the-Cob
Boiled, Herbed Potatoes
French-Fried Potatoes
Baked Potato (toppings extra)

FLIRTATIONS

Crispy Nachos
...smothered with melted cheese

Fresh Carrot-Zucchini-Tomato Plate
...served raw and bite-sized



Chilled Melon
...served with fresh mint

Fried Wontons
...served with soy sauce

Fried Spud Skins
...topped with sour cream and chives

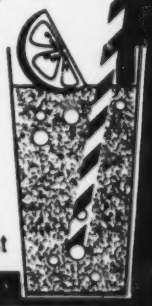
Fresh, Chilled Shrimp
...served with a spicy cocktail sauce

Beef Consomme
...sprinkled with chopped parsley

New England Clam Chowder
...made thick and creamy

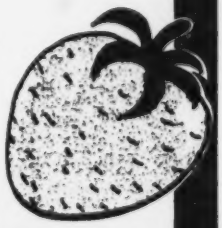
POPULAR SIPPERS

Milk...Whole or Lowfat
Chilled Apple Cider
Iced Tea
Soft Drinks
Fresh Brewed Coffee or Tea
Milkshake...Vanilla or Chocolate
Sparkling Water with a Lime Twist



TEMPTATIONS

Ice Cream
Cheesecake
Apple Pie
Chocolate Mousse
Ice Cream Sundae with Hot Fudge Sauce, Nuts, and Whipped Cream
Fresh Berries (in season)



HOT STUFF

Cheese Pizza
...covered with vegetable toppings, or pepperoni, anchovies, olives, and extra cheese

Ham and Mushroom Quiche
...baked in a flaky crust

Southern-Style Chicken
...breaded and fried to a crispy golden brown

Chicken Teriyaki
...marinated and broiled without the skin and served with mustard sauce

Fish of the Day
...served fried, broiled, poached or baked

Beef en Brochette
...skewered lean beef with fresh mushroom caps

Pasta with Steamed Vegetables
...tossed in a light yogurt sauce

Breaded Pork Chops
...pan-fried to perfection and smothered with gravy

Barbecued Pork Ribs
...broiled with smoked barbecue sauce

16-Ounce Steak
...charbroiled to your taste and served with steak sauce

Lesson 5

The Fitness Table

Choose a Diet With Plenty of Vegetables, Fruits, and Grain Products

Objectives...

After completing the lesson, students will be able to —

- define dietary starch, complex carbohydrate, simple carbohydrate, and fiber,
- state the health benefits of a diet adequate in starch,
- state the health benefits of a diet adequate in fiber,
- identify vegetables, fruits, and grain products as sources of starch and fiber, and
- evaluate how often they eat foods high in carbohydrate and fiber.

Key Points...

1. Carbohydrates — both simple and complex — are a major source of energy. Sugar is a simple carbohydrate, and starch is a complex carbohydrate.
2. Besides energy, many foods high in starch provide essential nutrients and fiber.
3. Dietary fiber is plant material that humans cannot digest.
4. Dietary fiber helps to move waste through the intestinal tract, and it can reduce symptoms of chronic constipation, diverticular disease, and hemorrhoids.
5. Populations with diets low in dietary fiber and complex carbohydrates and high in fat, especially saturated fat, tend to have more heart disease, obesity, and some cancers.
6. Grain products, dry beans and peas, nuts, and starchy vegetables are good sources of complex carbohydrates.
7. Whole-grain breads and cereals, dry beans and peas, vegetables, and fruits contribute dietary fiber. It's best to eat a variety of fiber-rich foods because they contain different kinds of fiber.
8. Besides complex carbohydrate and fiber, vegetables, fruits, and grain products have other food components linked to good health.
9. Eating plenty of vegetables, fruits, and grain products daily is recommended: at least three vegetable servings, at least two fruit servings, and at least six servings of grain products daily.

Materials for Learning...

1 piece hard candy
1 whole-wheat cracker
chalkboard, chalk; *or* large sheet of paper, marker
3/4 cup apple juice
1/2 cup applesauce
whole, unpared apple
2 loaves bread (brown wheat bread and whole-wheat bread) with food label (See page 3 of the bulletin on starch and fiber — HG 232-4 — for an explanation.)
bottle of iodine
"What's Your Starch and Fiber Factor?" self-test from page 57
students' 7-day food records from Lesson 2
"The Fitness Table: For Good Health and High Performance" activity sheet from page 36

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- Make signs on 5- x 8-inch cards: candy — no nutrients but simple carbohydrate; whole-wheat cracker — many nutrients and complex carbohydrate; whole, unpared apple — 3.0 grams fiber; 1/2 cup applesauce — 1.5 grams fiber; 3/4 cup apple juice — 0.2 gram fiber.
- Duplicate "What's Your Starch and Fiber Factor?" and "The Fitness Table: For Good Health and High Performance" for each student.

Notes to You...

- This lesson might be presented with a unit on the digestive system, personal health, consumer health, chronic disease, sports nutrition, or general nutrition.
- Before the lesson, review the definitions of these terms: calories, complex carbohydrate, fiber, simple carbohydrate, starch, sugars, whole grains.

Lesson Plan...

1 Introduce complex carbohydrate. Display the candy and cracker. Say:

- **These are two foods you might snack on. What do they have in common?**

- **Both snack foods are high in carbohydrate. Candy is mainly sugar, which is a simple carbohydrate. The cracker is made mainly from whole-wheat flour which is high in starch. Starch is a complex carbohydrate.**
- **What is the main function of carbohydrates — simple or complex — in your body?** (Energy.)
- **How is energy in food measured?** (In calories.)

Continue by asking:

- **What food groups do these snacks belong in?** (Whole-wheat cracker — breads, cereals, rice, and pasta; candy — fats, oils, and sweets.)
- **How are these two snacks nutritionally different?**

Point out:

- **This candy has calories and almost no nutrients except simple carbohydrate in the form of sugar.** Display card sign by candy.
- **The cracker has calories and many nutrients — vitamins, iron, and protein — besides complex carbohydrate. Some crackers provide a lot of fat.** Display card sign by cracker.
- **Starch is one type of complex carbohydrate.**
- **Unlike sugars and sweets, most starchy foods are good sources of vitamins and minerals as well as calories.**
- **Foods in the bread, cereal, rice, and pasta group as well as vegetables are good sources of complex carbohydrate. What foods are they?** Have students name foods and write them on the board. Refer to page 2 of the bulletin HG 232-4 for a list of foods with starch, or complex carbohydrate.

2 Display three other snacks — apple juice, applesauce, unpared apple — to introduce dietary fiber. Ask:

- **What makes these three snacks alike?** (All are forms of apple; all belong in the fruit group; all provide some vitamins and minerals; all provide carbohydrate.)
- **What makes these three foods different?** (Different processing method.)

Explain:

- **Fiber is plant material that we can't digest.**
- **Processing may affect a food's fiber content. Some fiber may be lost.**

Ask:

- **Which apple snack has the most fiber? The least?** Display the card signs for apple juice, applesauce, and apple next to each fruit.
- **Fiber comes from several sources. Many fruits and vegetables, especially those with edible skins, stems, or seeds, are good sources. So are dry beans and peas, nuts, and whole-grain breads and cereals.**
- **The Dietary Guideline we'll learn about today is "Choose a diet with plenty of vegetables, fruits, and grain products."** Write the statement on the board.

3 Introduce whole grains as a fiber source. Display the whole-wheat cracker and the apple. Say:

- **What do these foods have in common?** (Good sources of fiber.) Point out that many crackers aren't made from whole-grain flour.

Write "whole grain" on the board. Say:

- **The flour in a whole-wheat cracker is made from a whole kernel of grain. The whole grain contains the bran and germ, which have most of the fiber.**

Draw a whole kernel of grain on the board, and label each part: germ, endosperm, bran

Explain the milling process and the nutrients in each grain part. For background, refer to pages 2 and 3 of the bulletin on starch and fiber (HG 232-4). Ask:

- **Which is more nutritious — flour made from just the endosperm or flour made from the whole grain?** (Whole grain. It contains the bran and germ with most of the fiber, vitamins, and minerals.)
- **How does enrichment improve the nutrients in white flour?** (Enrichment replaces four important nutrients lost in the milling process — iron, thiamin, riboflavin, and niacin.)

Point out that compared with enriched grain products, whole grains have more of other nutrients, such as folic acid, vitamin B_6, vitamin E, phosphorus, magnesium, and zinc, as well as much more fiber.

4 Display brown wheat bread and whole-wheat bread. Refer to page 3 of bulletin on starch and fiber (HG 232-4). Say:

- **Breads often look alike. But the fiber content is quite different.**
- **Which is the real whole-grain bread?**
- **If both are brown, how can you tell the difference?**

Explain how to look for the terms "whole-wheat" and "whole-grain" on the ingredient list on a food label. The term "bran" also indicates higher fiber. Point out:

- **When fiber is added to wheat products, it will be indicated on the label, too.**

5 Discuss the reasons for eating a diet containing adequate complex carbohydrate and fiber. Refer to pages 1 and 2 of bulletin on starch and fiber (HG 232-4):

- **Carbohydrates are a major source of energy in the diet. Foods high in starch also provide essential nutrients, and whole grains provide fiber.**
- **To keep fit, you need to get most of your calories from complex, rather than simple, carbohydrates.**
- **Dietary fiber helps to move waste products through the intestinal tract. Therefore, it helps**

reduce the symptoms of chronic constipation and some other disorders of the digestive system.

- **Eating enough complex carbohydrate and fiber, and not too much fat, helps protect you from heart disease, obesity, and some cancers when you're older.**
- **It's best to eat a variety of fiber-rich foods because they contain different kinds of fiber which have different functions in the body.**

Continue by saying:

- **When you cut down on fat and sugars, as the Dietary Guidelines suggest, you may need to increase the amount of starchy foods you eat to supply your body's energy needs.**
- **Some people think that starchy foods are fattening. That's not true. It's the add-ons — cream sauce, butter, etc. — that make calories high. What are other examples of add-ons?** (Answers might include: 1 tablespoon margarine or butter (100 calories) on a potato or 1 tablespoon mayonnaise (100 calories) on bread.)

6 Have students evaluate starch and fiber in their own diets. Ask:

- **Do you eat enough starch and fiber?** Distribute the self-test "What's Your Starch and Fiber Factor?" Have students use their 7-day food records, completed in Lesson 2, as a reference. Say:
- **Score your food choices to see how often you eat foods high in starch and fiber.** Give students time to complete the self-test. Then discuss students' responses:
- **Look at your answers. You'll have the highest "starch and fiber factor" if you can answer all the items as "almost daily."**
- **Who has several check marks in the last column?**
- **What do those check marks in the last column say about your diet for those 7 days? (**Diet may have adequate amounts of starch and fiber.) Refer to page 1 of bulletin on starch and fiber (HG 232-4) for more discussion of the quiz.
- **What changes might you make in your diet to eat more starch and fiber?** Have students write their responses on the self-test.

7 Have students apply their knowledge of complex carbohydrate and fiber by planning menus for teenagers. Distribute the activity sheet "The Fitness Table: For Good Health and High Performance." Then go over the instructions. Say:

- **What is the best source of calories (or energy) for your body?** (Carbohydrate.)
- **What foods are the best sources of complex carbohydrate?** (Breads, cereals, rice, pasta, and starchy vegetables.) **And fiber?** (Whole-grain products, vegetables, and fruits.)
- **How many servings of each do you need daily of fruits?** (2 to 4.) **Vegetables?** (3 to 5.) **Breads, cereals, rice and pasta?** (6 to11.)
- **What is a high performance diet?** (A varied, balanced and moderate diet — for nonathletes and/or athletes during training and prior to and after athletic events. This diet has enough of the nutrients and calories teens need for good health.) Continue by saying:
- **Imagine that you're a member of the Fitness Boosters. You're helping to plan menus and snacks for your school's athletes and spectators for "The Fitness Table."**
- **Plan two lunch menus and a list of "Action Snacks" with plenty of complex carbohydrate and fiber.**

Divide students into groups. Give them time to complete the activity sheet. Then, as a class, review their recommendations and the reasons for including adequate starch and fiber in menus.

Learning More...

"Healthline." Have students write an "athlete's column" for the "Healthline" newsletter. The article should focus on nutrient-dense foods with complex carbohydrate as an excellent calorie and nutrient source for athletes. Include a sidebar on fiber. Have students save the column for Lesson 9 to edit into the completed newsletter.

"A High-Fiber Pizza Contest." Show students the picture on the box of a frozen pizza. Discuss the reasons why a typical pizza is low in fiber — remember both crust and toppings. Have a pizza recipe contest for the most creative and yet appealing use of high-fiber pizza ingredients. If possible, have the student(s) with the winning recipe prepare the pizza(s) for the class. You might ask the school food service department or home economics department for help.

"Whole-Grain Scavenger Hunt." Send students on a food label hunt — at home or in the supermarket — to find two breakfast cereals, two snack foods, and at least two other foods which are high both in starch and fiber. Have them write the name of each food, the key ingredients which make it high in starch and fiber, and the nutrient information on carbohydrate and fiber. Draw conclusions in class. Refer to the information on page 3 of the bulletin on starch and fiber (HG 232-4) for information on label reading.

"Does It Have Starch?" Have students demonstrate that some foods have starch. As a control, dissolve 1/2 teaspoon cornstarch in 1/4 cup water. Add 2 drops of iodine. The dark blue/purple

color indicates the presence of starch. Now drop iodine on foods from each food group, such as bread, cheese, orange section, potato, and a sliced, hard-cooked egg. Compare the color change to the control. (Note: Iodine is harmful and should not be consumed.) Discuss: Which foods have starch?

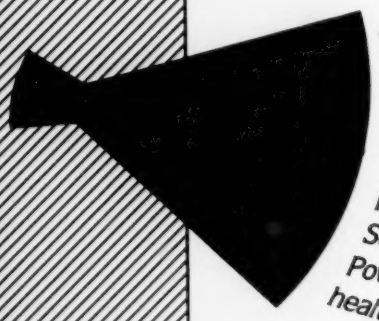
"Your School's Training Table." As the health educator, work with high school athletes and your school food service manager to provide an Athlete's Training Table during lunch. The menus should offer variety and include good sources of starch (or complex carbohydrate). Remind students to keep all the Dietary Guidelines in mind when planning menus.

Fitness...On the Move

Carbohydrate loading — or consuming large amounts of high-carbohydrate, lowfat foods several days before an endurance event — may be useful to adult athletes for high-endurance events, such as marathon running. Because it poses potential health risks, especially for teenagers who are still growing, this practice requires careful supervision by a physician or a certified athletic trainer. A balanced and varied diet following "The Food Guide Pyramid" (see leaflet) can provide enough of the nutrients, including complex carbohydrates, and calories most teenage athletes need.

ACTIVITY SHEET FOR LESSON 5

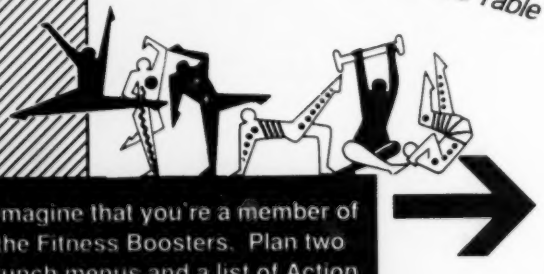
The Fitness Table: For Good Health and High Performance



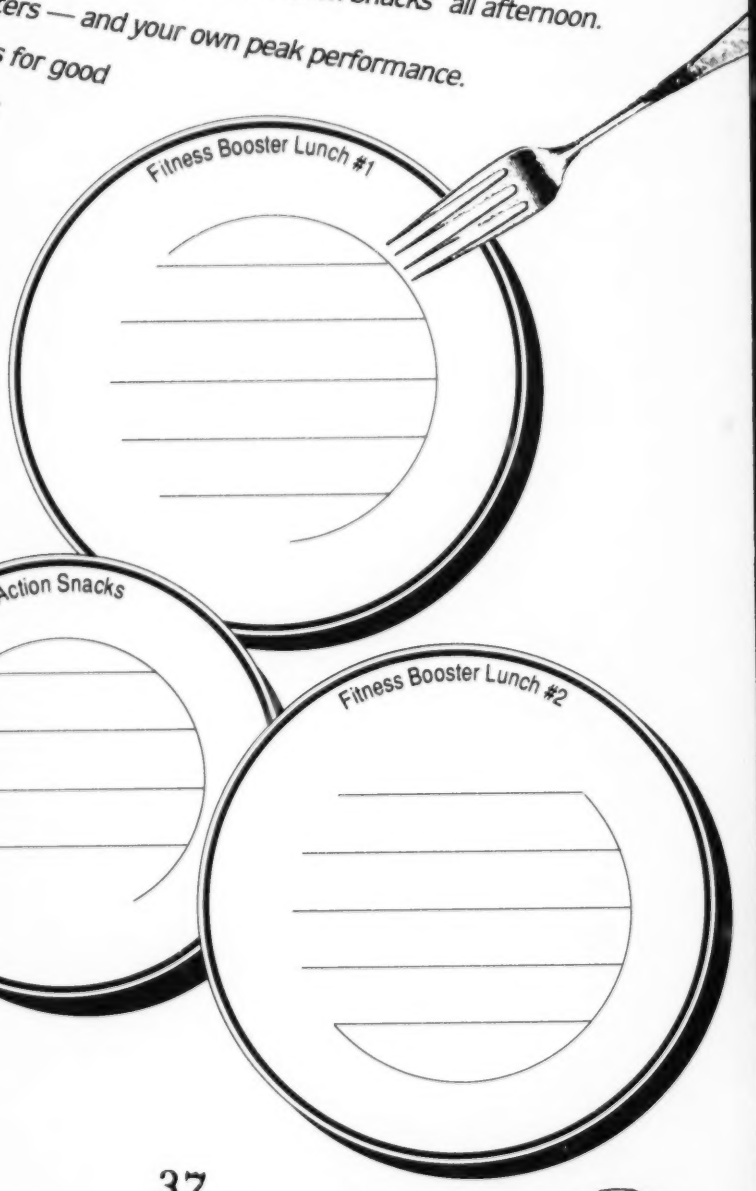
Attention, All Students . . .

Whether you're a jock or not, power your body with complex "carbs." They're your best source of energy. And don't forget the fiber!

Every Saturday, our school's Fitness Boosters sponsor a pre-event "Fitness Table" for spectators and for athletes. We start serving three to four hours before game time...and continue to sell "Action Snacks" all afternoon. Support the Fitness Boosters — and your own peak performance. Power your body with foods for good health at the "Fitness Table"!



Imagine that you're a member of the Fitness Boosters. Plan two lunch menus and a list of Action Snacks for the Fitness Table. Include foods that supply plenty of complex carbohydrate and fiber. Your menus should provide food from each of the food groups.



For energy, some foods with complex carbohydrate:

- breads
- cereals
- pasta, such as spaghetti and noodles
- rice
- dry beans and peas
- starchy vegetables, such as potatoes, corn, peas, and lima beans

For good health, some foods with fiber:

- whole-grain breads
- whole-grain breakfast cereals
- whole-wheat pasta
- vegetables, especially with edible skins, stems, seeds
- dry beans and peas
- fruits, especially with edible skins or seeds
- nuts and seeds

Lesson 6

Sleuthing for Hidden Sugars

Use Sugars Only in Moderation

Objectives...

After completing the lesson, students will be able to —

- define added sugars and caloric sweeteners,
- state reasons for moderating sugars in the diet,
- identify sources of added sugars,
- evaluate how often they eat foods high in added sugars, and
- describe ways to moderate sugars in the diet.

Key Points...

1. Sugars are simple carbohydrates. Some are naturally present in nutritious foods such as milk and fruits. Others are added to foods.

2. Sugars provide energy (calories). Sugars and many foods with large amounts of sugars supply calories but are limited in nutrients.

3. Food labels list many types of added sugars and sweeteners, including table sugar, corn syrup, honey, dextrose, and molasses.

4. Carbohydrates — simple sugars and starches which break down into sugars — can contribute to the development of tooth decay. The more often they are eaten and the longer they stay in the mouth before teeth are brushed, the greater the risk for tooth decay. People are urged to avoid excessive snacking and to brush regularly.

5. Eating excess calories from any source, including added sugars, can lead to weight gain and obesity. Diets high in sugar have not been shown to cause diabetes, but obesity is a risk factor for the most common type of diabetes.

6. Foods high in sugars may replace foods with more vitamins and minerals in the diet.

7. The best guideline is to use sugars in moderate amounts — and sparingly if calorie needs are low. For active people and growing teens, sugars can be a useful source of calories.

8. Sugar substitutes (artificial sweeteners) — sorbitol, saccharin, and aspartame — are useful for people concerned about calorie intake, but they have no known health advantages for healthy people.

Materials for Learning...

12-ounce can orange soda (not diet soda or a kind with fruit juice)
12-ounce club soda (For tasting, you'll need more — 12 ounces for every 4 students.)
1/4 cup (12 teaspoons) table sugar
yellow and red food coloring
orange-flavored extract
12-ounce clear tumbler (You'll need more to prepare for tasting.)
measuring spoons
spoon for stirring
small cups for tasting, one per student
chalkboard, chalk; or large sheet of paper, marker
students' time capsules from Lesson 1
"Sleuthing for Hidden Sugars" activity sheet from page 41 (optional)
supplies for students to make displays or posters from the information
"Your Diet: How Sweet Is It?" self-test from page 58
students' 7-day food records from Lesson 2

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- On the board, copy the ingredient list and "Names of Sugars Used in Foods" from page 3 of the bulletin on sugar (HG 232-5).
- Duplicate "Sleuthing for Hidden Sugars" and "Your Diet: How Sweet Is It?" for each student.

Notes to You...

- This unit may be incorporated into units on dental health, weight control, personal health, or consumer health.
- Before this lesson review the terms: added sugars, calories, carbohydrate, simple carbohydrate, sugars.
- You may need to ask students to bring in labels from foods with added sugars if their food time capsules don't have many food labels.

Lesson Plan...

1 Introduce the concept of added sugars. Point to a display of club soda, sugar, food coloring, and orange-flavored extract. Say:

- **Imagine that you are standing in front of a vending machine.**
- **These are the ingredients in one item you can buy from the machine.**

Pour 12 ounces of club soda into a tumbler. Say:

- **Club soda is just carbonated water.**
- **During processing 9 to 12 teaspoons of sugars or other sweeteners are added.**

Measure 12 level teaspoons of table sugar into the club soda and mix until dissolved. Ask:

- **Who would buy this as a refreshing drink?**
- **What food product has this basic recipe?**

Hold up the tumbler with the club soda and sugar, and a 12-ounce can of orange soda. Say:

- **This is the basic recipe for a soda.**

Have a student look at the ingredients listed on the soda can. Ask:

- **What is added for sweetness?** Point out that food processors use many different sugars, such as corn syrup.
- **Does a soda have more sugar than you thought?**
- **What else is added to make orange soda?** (Orange coloring and orange flavoring.)

Add 2 drops of red and 3 drops of yellow food coloring to the "soda." And add 1/4 teaspoon of orange-flavored extract. (Optional — ask volunteers to make enough "soda" for the class to taste, then pour samples for tasting.) Ask:

- **What does this demonstration tell you about sugars in foods and beverages?** (Added sugars are part of processed foods; foods may have more sugars than people think.)
- **Think of how much soda you drink in a typical week.** Pause. **Now add up the amount of sugar in your sodas.** Pause. **Are you surprised by how much added sugars you consume, just from sodas?**

2 Define sugars and their role in the diet. Refer to page 2 of the bulletin on sugars (HG 232-5) for background. Point out:

- **Sugars are simple carbohydrates. From a nutritional standpoint, carbohydrates — both simple and complex — do one main job. They provide calories, or energy, for activity and for your body's work.**
- **Foods that contain sugars naturally, such as fruits and milk, also provide important vitamins and minerals in addition to calories.**
- **Sugars added to foods add only carbohydrates and calories but no other nutrients. They should be consumed in moderation.**
- **If you're ordering a drink to go with a fast-food meal, which of these — milk, juice, or a soda — are most nutritious?** (Milk and juice.) **Why?** (Milk and juice provide other nutrients along with carbohydrates. The soda only provides simple sugars and calories.)

3 Introduce the lesson objective. Say:

- **Today you'll learn about another Dietary Guideline — "Use sugars only in moderation."** Write the Guideline on the board.

4 Discuss the reasons for avoiding too much of the various sugars. For background, refer to pages 1 and 2 of the bulletin on sugars (HG 232-5) and pages 21 and 22 of the *Dietary Guidelines for Americans* pamphlet (HG 232). Focus on these issues:

- **Tooth decay is the major health problem related to eating too much sugar. Both simple sugars and starches, which break down into sugars, can contribute to the development of tooth decay.**
- **Even sugars naturally present in fruit and other foods are linked to tooth decay, especially when eaten between meals. For example, sugar naturally present in milk is linked to tooth decay in babies when a bottle is repeatedly left in the baby's mouth for a long time.**
- **The more often carbohydrate-containing foods are eaten and the longer they're in the mouth before brushing, the greater the risk of tooth decay.**
- **For this reason, frequent between-meal snacks may harm teeth more than the same foods eaten at meals.**
- **Regular brushing and flossing help prevent tooth decay. Using a fluoride toothpaste helps, too.**

Continue by discussing other related issues:

- **What happens when you eat more calories than you need for growth, maintenance, and activity?** (You gain weight.)
- **Scientific evidence doesn't show, as some people have thought, that sugars cause obesity, diabetes, heart disease, or hyperactivity. However, high calorie intake, whether from sugars or other sources, can lead to obesity; and obesity is linked to heart disease, diabetes, and other diseases.**
- **Some people substitute foods high in sugars, such as sodas, for more nutritious foods, such as milk. Therefore, their diets may not have enough vitamins and minerals essential for health. For example, when sodas substitute for milk, people may not get enough calcium for bone health.**

5 Have students learn how diets become high in added sugars. Start by discussing how sugar is listed on a food label. Say:

- **Processed foods are the major source of added sugars in our diets.**
- **Sugars are added for many reasons, including to flavor and preserve foods.**
- **The ingredient list on a food label offers some clues about the added sugars in processed foods.**
- **Ingredients are listed on a product by weight, from most to least. While they don't tell you the exact amount of any ingredient, they do give a rough idea of the relative amount of each ingredient.**

Refer to the ingredient list on the board copied from page 3 of the bulletin on sugar (HG 232-5). Ask:

- **What does the label on the board tell you about the sugar content of the product?** (Bleached flour is the main ingredient in this product; sugar is second.) Circle "sugar."
- **If sugar is listed second, what does that suggest about the added sugars in this product?** (Sugars content is high.)

Point out:

- **Although we think of sugar as white table sugar, there are many other kinds as well.**
- **The suffix "-ose" means sugar. What sugar do you see with this suffix?** (Dextrose.) Circle "dextrose." On the board list names of other simple sugars: sucrose, glucose, fructose, lactose.
- **What other sugar is listed?** (Corn syrup.) Circle "corn syrup."
- **What sugar is present in the greatest amount?** (Sugar.) **The least amount?** (Corn syrup.)
- **Because this list shows three sugars as the second, fourth, and sixth ingredients, what might you say about the food?** (These three sugars account for a large portion of this food. The food is high in added sugars.)

6 Have students learn that sugars are added to many processed foods. Display the "Names for Sugars" chart from the bulletin on sugar (HG 232-5). Using the food labels in their time capsules, have each student name sugars in one food product. Say:

- **As I call each food group, hold up your food label if it belongs in that group, and name the sugars it contains. You'll hold up combination foods more than once.** Call out each food group, including the fats, oils, and sweets group.
- **What can you conclude?** (Added sugars can be found in all food groups, including the fats, oils, and sweets group.)

Point out:

- **How might you avoid too much extra sugars?** (By eating those foods from the five major food groups that don't have much added sugars, and by eating foods from the sixth group — fats, oils, and sweets — in moderation.)
- **Why is it smart to eat sweets only in moderation?** (They provide sugars and calories, but few if any other nutrients. Too much sugar contributes to tooth decay.)

Point out:

- **Sugars should be used in moderation by most healthy people. For very active people, sugars can be a useful source of calories.**

Continue by asking:

- **How can you find foods from the five major food groups that have little or no added sugars?** (Use the ingredient label on food products.)

Point out:

- **Fresh foods — such as fruits; vegetables; unprocessed meat, poultry, and fish; and eggs — have no added sugars.**

7 Discuss why artificial sweeteners aren't the best answer for cutting back on added sugars. Refer to page 3 of the bulletin on sugars (HG 232-5). Ask:

- **Some people drink diet sodas with meals rather than milk or juice to save calories. Is this a good idea?** (No. Diet sodas don't have calories, but they don't have nutrients either.)

Point out:

- **Substituting diet sodas for nutritious beverages might keep people from getting enough nutrients, such as calcium and riboflavin from milk and vitamin C from juice.**
- **Artificial sweeteners — sorbitol, saccharin, and aspartame — are useful sugar replacements for people concerned about calorie intake. They have no known health advantages for healthy people.**

8 Have students judge their own food choices for added sugars. Distribute the self-test "Your Diet: How Sweet Is It?" Have students use their 7-day food records, completed earlier, as their reference. Say:

- **Score your own food choices to find out how often you eat foods that may be high in sugars.**

Give students time to complete the self-test. Explain any terms they don't know, such as "heavy syrup." (Fruit is often canned in this sweet syrup.) Discuss students' responses:

- **Where are most of your check marks?**
- **What do your responses suggest about your diet?** (The more often students ate foods on the self-test, the more sugars they ate.)
- **If most of your checks are in the first two columns, you've done a great job of controlling your sweet tooth.**
- **If most of your checks are in the last two columns, watch the calories and the sugars! You may be eating too much of both.**

Point out:

- **Using jam, jelly, or honey on bread or rolls instead of margarine, butter, or mayonnaise is one way to cut down on fat in a meal, however.**
- **It isn't necessary to use artificial sweeteners or foods made with artificial sweeteners to avoid too much sugar in your diet.**

9 As a post-test, have students complete the sentences at the bottom of the activity sheet "Your Diet: How Sweet Is It?" Ask:

- **How could you change your eating habits to eat less sugars?** Refer to page 4 of the bulletin on sugars (HG 232-5) for suggestions.

10 Have students do more sleuthing to find hidden sugars. Distribute the activity sheet "Sleuthing for Hidden Sugars." As homework, have students use food labels to find sugars in various foods. Divide the class into four groups that correspond to the categories on the activity sheet: 1) foods with sugars added during processing, 2) desserts, 3) sweets, such as candies, and 4) artificial sweeteners. Each group will create a display or poster to show the kinds and amounts of sugars or the kinds of artificial sweeteners in each food. (Note: Students might measure table sugar to visually compare the sugars in various foods.)

Learning More...

"Healthline." Have students write a "Did You Know...?" feature about added sugars for their "Healthline" newsletter. Have them cover both reasons and tips for avoiding too much added sugars in the diet. Have students save the feature for Lesson 9 to edit into the complete newsletter.

"Vending Machines — What's Offered?" Vending machine foods — soft drinks, candy, snack cakes, cookies — are typically high in added sugars. Have students do a survey of vending machine foods available in your community. Discuss which ones are high in added sugars. What foods might be substituted to provide more nutrients but less added sugars? If your school has a vending machine, students might talk with your principal or student council about offering some vending machine foods with less added sugars.

"Comparing Beverages." Have students use food labels to compare the sugars in these beverages: 100-percent fruit juice, fruit drinks made with real juice, fruit punch, and fruit drinks.

"Fact or Fiction?" As a discussion starter, give students the true-false test "Sugar: Fact or Fiction?" on page 1 of the bulletin on sugars (HG 232-5). Use the answers on page 8 of the bulletin for your discussion.

"Does It Have Sugar?" Have students demonstrate what foods have sugar. As a control, combine 1 tablespoon corn syrup, 1 tablespoon water, and 1 teaspoon Fehling's or Benedict's solution in a test tube. (Ask your science department about obtaining Fehling's or Benedict's solutions.) Heat. The development of color indicates the presence of sugar. Now liquify a variety of foods in a blender. Heat the liquified foods with water, and add Fehling's or Benedict's solution. Have students compare the color change with the control. Discuss which foods have sugar; use food labels to verify which foods have natural versus added sugars.

"Terms That Mean Added Sugars." For added practice, duplicate the puzzle on page 3 of the bulletin on sugars (HG 232-5). Have students find the 10 hidden sugars in the puzzle. The solution to the puzzle is on page 7 of the bulletin.

Fitness...On the Move

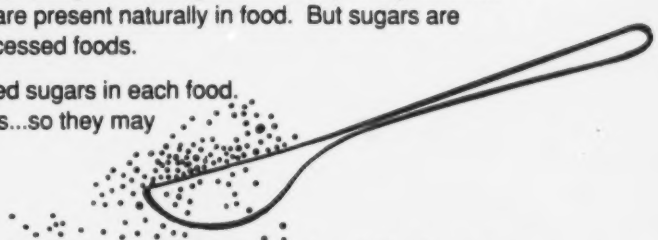
To refute a common myth, foods with added sugars, such as soft drinks or candy, eaten just before a physical workout won't provide "quick energy." Some sugars are absorbed quickly into the bloodstream. But the insulin produced by the body to help use those sugars may actually bring blood sugar levels below their original levels. Instead of providing quick energy, these foods may have the opposite effect.

ACTIVITY SHEET FOR LESSON 6

SLEUTHING
FOR HIDDEN SUGARS

To most people, "sugar" means white table sugar. But sugars are really many different sweeteners that have calories. Some are present naturally in food. But sugars are added also as ingredients in many processed foods.

Be a first-rate sleuth. Look for the added sugars in each food. But beware. Sugars go by many aliases...so they may be hard to find!



SUGAR ALIASES

- ◆ Sucrose
- ◆ Glucose
- ◆ Dextrose
- ◆ Maltose
- ◆ Maple syrup
- ◆ Lactose
- ◆ Fructose
- ◆ Sorbitol
- ◆ Mannitol
- ◆ Corn sweetener
- ◆ Honey
- ◆ Corn syrup
- ◆ Molasses
- ◆ High-fructose corn syrup

For the food products listed below, look at the food labels to find what sugars they contain. In the right column, write the names of those sugars. Sleuth until you find all the sugar aliases. The middle column, "How Much Added Sugars?" shows that they all have some sugar.

Food Product	How Much Added Sugars?	What Sugars are Hiding?
Foods with Sugars Added During Processing		
Presweetened breakfast cereal (1 ounce)	3½ teaspoons	_____
Canned fruit in heavy syrup (½ cup)	4 teaspoons	_____
Canned fruit in light syrup (½ cup)	2 teaspoons	_____
Sweetened fruit drink (12 ounces)	11 teaspoons	_____
Doughnut (1)	2 ½ teaspoons	_____
Muffin (1)	1 teaspoon	_____
Croissant (1)	½ teaspoon	_____
Desserts		
Ice cream (½ cup)	3 teaspoons	_____
Oatmeal cookies (2)	1 teaspoon	_____
Apple pie (⅛ of a 9-inch pie)	6 teaspoons	_____
Frosted layer cake (1/16 cake)	6 teaspoons	_____
Sweet Foods		
Jelly (1 teaspoon)	1 teaspoon	_____
Chocolate bar (1 ounce)	3 teaspoons	_____

TASTES LIKE SUGAR, BUT IT'S NOT ...

Some ingredients provide sweetness without calories. A real sleuth can spot these artificial sweeteners — aspartame and saccharin.

Find three food labels with these ingredients. (Clue: the foods may be promoted as "low-calorie" foods.)

Food Product	Type of Artificial Sweeteners
1_____	_____
2_____	_____
3_____	_____

Remember, however, you don't need to use artificial sweeteners to control added sugars in your diet.

Lesson 7

What's In The Bag?

Use Salt and Sodium Only In Moderation

Objectives...

After completing the lesson, students will be able to —
- state the reasons for moderating salt and sodium,
- identify food sources of sodium,
- evaluate how often they eat high-sodium foods, and
- describe ways to moderate sodium in the diet.

Key Points...

1. Sodium, an essential nutrient, helps the body maintain normal blood volume and blood pressure and helps nerves and muscles function. In food, sodium is used in preservatives and flavor enhancers.
2. Table salt contains sodium and chloride. Food and beverages containing salt provide most of the sodium in our diets; much is added during processing and manufacturing, and some is also added in cooking and at the table.
3. Most Americans eat more salt and sodium than they need.
4. High blood pressure is more common in populations with diets high in salt. Other factors also affect blood pressure — heredity, obesity, and excessive drinking of alcoholic beverages. High blood pressure increases the risk of heart attacks, strokes, and kidney disease.
5. Restricting salt and sodium helps lower blood pressure in some people with hypertension. Eating less salt and sodium may reduce the risk of high blood pressure among some people.
6. Food labels can help people identify high-sodium foods. Many snack foods, processed foods, and fast foods are high in sodium.
7. People can moderate the salt and the sodium in their diet: by using the salt shaker sparingly; by using salted and high-sodium foods sparingly; by enjoying flavors of unsalted foods; by flavoring foods with herbs, spices, and lemon juice; and by using food labels to choose foods lower in sodium.

Notes to You...

- This lesson might be presented with a unit on chronic or cardiovascular disease (as you discuss high blood pressure), the circulatory system, consumer health, or personal health.
- Before the lesson, review the definitions of these terms: hypertension, risk factor.
- Sodium information on nutrition labels is mandatory, rather than optional, as indicated on page 5 of HG 232-6.
- Bulletin HG 232-6 indicates the National Research Council (NRC) guideline of 1,100 to 3,300 milligrams of sodium daily is "safe and adequate." In 1989, newer Recommended Dietary Allowances from the NRC indicate a safe minimum intake of 500 milligrams of sodium daily for adults and teens, and suggest an upper limit of 2,400 milligrams of sodium daily. (This equals about 1-1/4 teaspoons of salt.)

Materials for Learning...

chalkboard, chalk; or large sheet of paper, marker
For each group of students:
  salt and salt shaker
  medium-size bowl
  measuring spoons
"Where's the Sodium in Your Food Choices?" self-test from page 58
students' time capsules from Lesson 1, which should include a variety of food labels; e.g., canned and frozen dishes, dehydrated soups, snack foods
"What's in the Bag?" activity sheet from page 45

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- Duplicate "Where's the Sodium in Your Food Choices?" and "What's in the Bag?" for each student.
- You may need to ask students to bring in labels from high-sodium foods if their food time capsules don't have many food labels.

Lesson Plan...

1 Introduce the lesson by having students think about the salt they add to foods. Divide the class into groups. Say:
- **Imagine you made a bowl of popcorn. How much salt do you usually shake on top?** Accept any answer.

Adapting the directions in "Shake the Habit" on page 4 of the bulletin on sodium (HG 232-6), have students in each group see how much sodium they actually do add to popcorn. Have them shake salt on the bowl

of imaginary popcorn, then collect and measure the salt. Ask:

- **How much salt did you shake on your "popcorn"?**

Continue by saying:

- **People often salt food even before tasting. Do you salt your food at the table without tasting it first?**
- **We also add salt when we prepare food.**
- **Many foods we eat are high in salt because salt is added during processing. What examples can you name?** (Processed meats, cereals, breads, prepared dinners, chips, peanuts, crackers.)
- **What are three ways we get salt in our foods?** (Added during processing; added during food preparation or at the table; naturally present.)

2 Explain that salt is made of sodium. Say:

- **What is the scientific name for the common ingredient we call "salt"?** (Salt is a combination of sodium and chloride.) Write "sodium chloride" on the board.
- **About one-third of the sodium most people consume comes from salt that's added to food in cooking or at the table. The rest is either naturally present in food or added in processing.**
- **One teaspoon of salt has 2,000 milligrams of sodium.**
- **How much sodium did you shake on your bowl of "popcorn"?** Refer to page 2 of the bulletin on sodium (HG 232-6) for salt-sodium conversions.

3 Introduce the Dietary Guideline. Say:

- **We all need a little sodium to stay healthy. But most of us eat much more than we need.**
- **The Dietary Guideline we'll learn about today is "Use salt and sodium only in moderation."** Write the Guideline on the board.

4 Discuss the functions of sodium in the body and the recommendations for sodium intake. Say:

- **Sodium is found in body fluids. It helps regulate fluid balance. It helps your body maintain its normal blood volume and blood pressure. Sodium is also needed for the normal functioning of your nerves and muscles.**
- **The latest recommendations of the National Research Council (NRC) indicate that 500 milligrams of sodium daily is the minimum requirement for good health. However, most Americans consume much more than they need. Some groups have suggested an upper limit for sodium. The American Heart Association has suggested limiting intake to 3,000 milligrams daily. The NRC has suggested an upper limit of 2,400 milligrams of sodium daily.** Measure 1/4 teaspoon of salt, and point out that 1/4 teaspoon of salt has all the sodium most people need for a day. (See "Notes to You...")

5 Discuss the reasons for moderating salt and sodium in the diet. Refer to page 1 of the bulletin on sodium (HG 232-6) and pages 23 and 24 of the *Dietary Guidelines for Americans* pamphlet (HG 232). Say:

- **In populations with diets low in salt, high blood pressure is less common than in populations where diets are high in salt. In the United States, one-third of adults have high blood pressure.**
- **For some people, high salt and sodium intake increases the chance of developing high blood pressure (hypertension). Currently, there's no way to predict who will develop high blood pressure or who will benefit from reducing dietary salt and sodium.**
- **Heredity (if your parents or grandparents had the condition), obesity, and excessive drinking of alcoholic beverages are risk factors for high blood pressure.**
- **High blood pressure increases the risk for heart attack, stroke, and kidney disease.**
- **For some people with high blood pressure, restricting salt and sodium helps lower blood pressure.**

6 Have students analyze the sodium in their diets. Refer to page 3 of the bulletin on sodium (HG 232-6) for information on sodium in food. Point out:

- **Salt and sodium are added to foods for flavor and to preserve foods.**
- **Foods contain different amounts of sodium. Cured meats, such as ham and sausage, have more sodium than fresh meat and fish. Cheese, which has salt added during processing, has more sodium than milk.**
- **The desire for salty foods is an acquired taste.**
- **How would you rate your food choices for sodium?**

Distribute the self-test "Where's the Sodium in Your Food Choices?" Have students use their 7-day food records, completed earlier, as a reference. Give students time to complete the self-test. Explain terms they don't know, such as "cured" or "processed" meats. Talk about students' responses:

- **Who had several checks in the last two columns?**
- **Who had most of their checks in the first two columns?**
- **What do you think your answers say about sodium in your diet?**
- **If most of your check marks are in the first two columns, you likely enjoy the fresh, natural flavor of food. That's a good habit to get into.**
- **If most of your checks are in the last two columns, you're a "salty character." You're likely eating too much sodium. Cut down for health.**

Refer to page 4 of the bulletin on sodium (HG 232-6) for more discussion on the self-test. Ask:

- **What changes might you make in your diet to moderate the salt and sodium?** Have students write their responses on the self-test. Answers might include: use salt sparingly at the table or in cooking, enjoy flavors of unsalted food, and use salty and high-sodium, processed foods sparingly.

7 Have students use food labels to identify sodium in food. Say:

- **What three ways does sodium occur in foods?** (Added during processing; added during cooking or at the table; naturally present.)
- **Like sugar, sodium is added during processing to many foods.**
- **What information on a food label tells you about sodium?** (Nutrition label, ingredient label.) Students should be familiar with ingredient labeling from Lesson 6.

Refer to page 5 of the bulletin on sodium (HG 232-6). Review the information on a food label:

- **Examine the food labels in your food time capsules. What information can you find on nutrition labels about sodium?** (Sodium listed in milligrams per serving.)
- **How do these amounts of sodium compare with the minimum requirement of 500 milligrams and the upper limit suggested by some groups of 3,000 or 2,400 milligrams?**

Using the nutrition label, have students rank the packages from most sodium to least. Then have them examine the ingredient list for clues about the placement of each food in the series. Say:

- **Like sugar, sodium is present in food in many forms.**
- **Ingredients with sodium have many different names on the label. Usually they have "salt" or "sodium" in the name.**
- **How is sodium indicated on the ingredient list of each food?** Write the names of high-sodium ingredients on the board. Refer to the list on page 2 of the bulletin on sodium (HG 232-6).

8 Distribute the activity sheet "What's in the Bag?" To learn more about the sodium and salt in food, have students analyze the bag lunch for sodium, then apply their knowledge by changing the lunch to lower the sodium. Have students share their new "bag lunch" with the class.

9 As a check for understanding, use the "Test Your Sodium Knowledge" quiz on page 1 of the bulletin on sodium (HG 232-6). Answers appear on page 8 of the bulletin.

Learning More...

"Healthline." Have students write a "Consumer Information Column" about salt and sodium for their "Healthline" newsletter. Have them write both reasons and tips for moderating salt and sodium in the diet. Have students save the column for Lesson 9 to edit into the completed newsletter.

"CHEWS." Using the activity sheet "CHEWS" from Lesson 4, have students look for terms on the menu which suggest "higher sodium": barbecued, cocktail sauce, marinated, mustard sauce, parmesan, smoked, steak sauce, soy sauce, teriyaki. Point out that few terms guarantee lower sodium, even if they are described as "fresh" or "homemade."

"Sodium in Fast Foods." Explain that many fast foods are high in sodium. Students may be surprised by foods with the largest amounts. For example:

	Sodium in Milligrams
• Quarter-pound hamburger with cheese	1,260
• French fries (regular-size order)	125
• Catsup on fries (1 tablespoon)	180
• Milkshake (10 ounces)	230
• Fried chicken (2 pieces)	865

Have students investigate the sodium in common fast foods. They might write to a fast-food chain, contact a registered dietitian, or check a consumer magazine. For more information, refer to page 5 of the bulletin on sodium (HG 232-6) or to the resources listed on page 4 of this publication.

"The Beverage of Champions." Sports drinks often have added sodium and sugars. Have students analyze the labels of sports drinks for sodium and sugars content. Discuss why most athletes don't need extra salt. (See "Fitness...On the Move" below.) State that diluted fruit juice and water are good fluid replacements.

Fitness...On the Move

Sodium, chloride, and potassium — all electrolytes — are lost when people sweat. (That's why skin tastes salty after strenuous activity.) Because most people, including athletes, consume more sodium and chloride than their bodies need, they don't need electrolyte replacements or salt tablets after heavy workouts. Usually, they can replace the sodium and other electrolytes lost through perspiration from foods and beverages they normally consume. Fluid replacement is very important to prevent dehydration.

ACTIVITY SHEET FOR LESSON 7

What's in the Bag?

Sandwich bread...fillings...accompaniments...dessert...and a beverage. That's a bag lunch you might take on a field trip or to an away-game. Some bag lunches have more sodium than others do.

This is the sodium information you'd find on a nutrition label.

Food	Sodium
1 slice rye bread	145 mg.
1 croissant	285 mg.
1 pita bread	155 mg.
4 whole-wheat crackers	90 mg.
1 slice white bread	140 mg.
2 ounces lean ham	750 mg.
2 ounces deli turkey	165 mg.
1 ounce bologna	290 mg.
2 ounces home-cooked turkey	40 mg.
1/4 cup tuna salad	210 mg.
1 ounce swiss cheese	75 mg.
1 ounce process cheese	405 mg.
2 tablespoons peanut butter	150 mg.
2 fig bars	80 mg.
2 sandwich-type cookies	95 mg.
1/4 cup salted peanuts	160 mg.
1/4 cup unsalted peanuts	0 mg.
1-1/2 ounce candy bar	35 mg.
1 leaf lettuce	0 mg.
1 slice tomato	0 mg.
1/4 cup bean sprouts	0 mg.
1 teaspoon mustard	65 mg.
1 teaspoon catsup	60 mg.
1 teaspoon mayonnaise	25 mg.
1 teaspoon margarine	45 mg.
1 teaspoon cream cheese	15 mg.
1 teaspoon jelly	0 mg.
1 teaspoon sweet pickle relish	35 mg.
1/2 cup corn chips	110 mg.
10 potato chips	95 mg.
small apple	0 mg.
1/2 -ounce box raisins	0 mg.
2 carrot and 2 celery sticks	10 mg.
1 medium dill pickle	930 mg.
1 banana	0 mg.
6 ounces tomato juice	660 mg.
6 ounces orange juice	0 mg.
1 cup lowfat milk	130 mg.

Add up the sodium in this typical "bag lunch."

What's for Lunch?	How Much Sodium?
1 croissant	___ mg.
2 slices boiled ham	___ mg.
1 ounce process cheese	___ mg.
1 lettuce leaf	___ mg.
1 teaspoon mustard	___ mg.
1 medium dill pickle	___ mg.
10 potato chips	___ mg.
2 fig bars	___ mg.
6 ounces tomato juice	___ mg.
Total:	___ mg.

Make changes to lower the sodium content. The meal should still offer variety without too much fat and sugars. Write the new menu in the "bag."

What's for Lunch?	How Much Sodium?
_____	___ mg.
_____	___ mg.
_____	___ mg.
_____	___ mg.
_____	___ mg.
_____	___ mg.
_____	___ mg.
_____	___ mg.
_____	___ mg.
Total:	___ mg.

Lesson 8

Alcoholic Drinks... An Offer You CAN Refuse!

For Teens: Avoid Alcoholic Beverages
For Adults: If You Drink Alcoholic Beverages, Do So in Moderation

Objectives...

After completing the lesson, students will be able to —
- evaluate the nutrient density of alcoholic and non-alcoholic beverages,
- explain the relationship between nutrition and alcohol use,
- state health risks related to alcohol abuse, and
- state ways to say "no" to alcoholic beverages.

Key Points...

1. Alcoholic beverages supply calories to the diet, but little or no nutrients.
2. Drinking alcoholic beverages has no net health benefit, is linked with many health problems, causes many accidents, and can lead to addiction.
3. Heavy drinking of alcoholic beverages may cause malnutrition, liver disease, inflammation of the pancreas, damage to the brain and heart, and increased risk of many cancers.
4. Major birth defects have been attributed to heavy drinking by the mother while pregnant. Women who are pregnant or trying to conceive should not drink alcoholic beverages.
5. People who plan to drive or engage in other activities that require attention or skill should not drink alcoholic beverages. Most people retain some alcohol in the blood 3 to 5 hours after even moderate drinking.
6. Alcohol may affect the benefits or toxicity of medicines, even over-the-counter kinds. Some medicines may increase blood alcohol levels or increase alcohol's adverse effect on the brain. People who use medicines should not drink alcoholic beverages.
7. For children and adolescents, drinking or buying alcoholic beverages is illegal and involves risks to health and other serious problems.
8. Advertising gimmicks can make alcoholic beverages appear glamorous without informing people of the dangers or risks.

Materials for Learning...

chalkboard, chalk
magazine pictures: cans of regular and light beer; bottles of dry wine, sweet wine, wine coolers, and liquors; cartons of milk, cans of cola, low-calorie soda, and assorted juices
magazine advertisements for alcoholic beverages
"Alcoholic Drinks...An Offer You CAN Refuse!" activity sheet from page 50

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- Duplicate "Alcoholic Drinks...An Offer You CAN Refuse!" for each student.
- Clip (1) magazine pictures of the beverages listed above, and (2) advertisements for alcoholic beverages from magazines, or have students bring them to class.

Notes to You...

- This lesson can be incorporated into units on substance abuse, nutrition, personal health, consumer health, family health, or mental health.
- The Dietary Guideline — "If you drink alcoholic beverages, do so in moderation" — is intended for adults for whom drinking alcoholic beverages is legal. This wording may be mistakenly viewed by teens as a sign that drinking is okay for them. For teens, instead use the message "avoid alcoholic beverages."
- Before the lesson, you may review these terms: calories, fetal alcohol syndrome, nutrient density.

Lesson Plan...

1 Introduce the lesson by saying:
- **What would you tell someone who tells you that drinking beer, or wine, or hard liquor is "cool"?**

Accept a variety of answers.
- **Today we'll learn about another Dietary Guideline. The Guideline for teenagers is: "Avoid alcoholic beverages."**

- **You've probably heard the phrase, "Just Say No!" That phrase applies to alcoholic beverages — beer, hard liquor, and wine — as well as to other drugs and tobacco.**
- **Why do you think a Guideline has been set for alcoholic beverages?** Accept a variety of answers.

2 Help students understand that alcoholic beverages provide calories but have little nutritional benefit. Write these terms on the board — "nutrient-dense foods" and "calorie-dense foods." Ask:

- **What do these terms mean?** (Nutrient-dense foods are good nutrient sources without excess calories; calorie-dense foods contain calories, but few, if any nutrients.)

Display magazine pictures of various beverages. Ask:

- **Which beverages are nutrient-dense?** (Milk and juices provide vitamins and minerals as well as calories.)
- **Which are calorie-dense?** (Alcoholic beverages and sodas are mainly calories.)
- **What are the five food groups you need for a varied diet?** (Vegetables; fruits; breads, cereals, rice, and pasta; milk, yogurt, and cheese; meats, poultry, fish, dry beans and peas, eggs, and nuts.)
- **What group do beer, wine, and hard liquor belong in?** (Fats, oils, and sweets group.)

Point out:

(1) Foods from this group aren't needed in a healthy diet and (2) alcoholic beverages aren't recommended for teens, and are illegal for teens in most States.

On the board, write "carbohydrate," "protein," "fat," and "alcohol," and the calories per gram in each. See page 2 of the bulletin on alcoholic beverages (HG 232-7). Explain:

- **Calories come from three nutrients: carbohydrate — 4 calories per gram; fat — 9 calories per gram; and protein — 4 calories per gram. Although alcohol isn't a nutrient, it provides 7 calories per gram.**
- **Alcoholic beverages are sources of calories, or energy. But they provide few, if any, nutrients besides water.**

Compare the calories in various alcoholic and non-alcoholic beverages. See page 2 of the bulletin on alcoholic beverages (HG 232-7). Students might also calculate calories from alcoholic beverages in amounts that may be commonly consumed by adults, for example: (1) several, rather than just one beer or (2) a jigger of rum mixed with a 6-ounce soda.

3 Talk about the nutritional consequences of drinking too much alcohol. Focus on these issues:

- **Alcoholic beverages provide unnecessary calories which may affect body weight.**
- **Heavy drinkers may replace nutritious beverages and food with alcoholic beverages. This may lead to malnutrition because of low food intake and poor absorption of nutrients by the body.**

4 Discuss other reasons teens should avoid drinking alcoholic beverages. For background, refer to page 1 of HG 232-7 and page 25 of the *Dietary Guidelines for Americans* pamphlet (HG 232). Ask:

- **What can happen to the body if someone drinks too many alcoholic beverages?**
- **Why should kids avoid alcoholic drinks?**

Focus on these issues:

- **Drinking alcoholic beverages before driving increases the risk of car accidents. In fact, drinking beer, wine, or hard liquor interferes with any activity requiring attention or skill, such as sports, studying, and many jobs. Most people retain some alcohol in the blood 3 to 5 hours after even moderate drinking.**
- **Drinking alcoholic beverages during pregnancy — even in the first and second months — can damage an unborn baby. Infants of mothers who drink heavily during pregnancy may develop certain birth defects. This is known as "fetal alcohol syndrome." Women who are pregnant or trying to conceive shouldn't drink.**
- **Heavy drinking is related to liver disease (cirrhosis), inflammation of the pancreas, damage to the brain and heart, and many forms of cancer.**
- **Drinking may lead to addiction.**
- **Use of alcoholic beverages by children and teens involves risk to health and other serious problems.**
- **Alcohol often adversely affects the way the body uses medicine. People who take medicines, even over-the-counter drugs, should not drink alcoholic beverages.**
- **Avoiding alcoholic beverages is one way to help people remain healthy. There are no health benefits from drinking alcoholic beverages.**

5 Have students judge advertisements as a way to learn about the misuse of alcoholic beverages. Explain:

- **Advertising can have a powerful effect on what we do, what we eat, and what we drink. It may inform or mislead us. It often plays on our emotions. The purpose is to get people to buy something.**
- **Why do you think teenagers start to drink?**
- **Ads may make alcoholic beverages look good or glamorous. But they really don't make you more popular, smarter, or more fun.**
- **You need to understand and evaluate ads so you make decisions that promote — rather than damage — your health and well-being.**

Define these common advertising techniques:

- bandwagon — "everyone's doing it,"
- testimonial — celebrity endorsement,

- transfer — association with the ad's message when buying the item,
- glad names — words connected with pleasant feelings,
- bad names — words connected with unpleasant feelings; e.g., "Stressed out? Have a drink,"
- hero — association with status or sex appeal,
- successful person — association with success,
- love symbols — appeal to desire to be cared for and needed, and
- health claim — associated with a physical benefit, usually not used in ads for alcoholic beverages.

Distribute ads for alcoholic beverages among students. Ask:

- **How do these ads lure people to buy or drink alcoholic beverages?** (Answers should relate to the advertising techniques.) Have students match the ad to the advertising technique described above.
- **Are the messages in the ads honest and realistic, or misleading? Why?**
- **Do the ads offer information or appeal to your emotions?**
- **To whom do these ads appeal?**
- **Could these ads lead to misuse of alcoholic beverages? How?**
- **How could you "say no" to messages in ads like these?**

Point out:

- **These same advertising techniques can be used in a positive way — to encourage people to avoid alcoholic beverages.**
- **How could you use these same techniques to inform people about the abuse and dangers of alcoholic beverages?**

6 Have students create a campaign against the use of wine coolers — or the alcoholic drink most commonly used locally among teens. Distribute the activity sheet "Alcoholic Drinks...An Offer You CAN Refuse!" Say:

- **Wine coolers may seem like soft drinks since two ingredients are carbonated water and added sugars. They also contain alcohol, though.**
- **A 12-ounce wine cooler has 175 calories, provided by both the alcohol and the sugars.**
- **Use the advertising techniques you just learned about to create your own advertising campaign. Include a T-shirt, a bumper sticker, and a news paper advertisement which tells teenagers about the risks of drinking alcohol.** Note to the teacher: You may wish to contact a local printer to have quantities of the best bumper sticker produced.
- **The messages should tell *why* teens should avoid alcoholic beverages.**
- **The messages should appeal to teens, their interests, and their concerns.**
- **As much as possible, the campaign should use positive messages, and perhaps humor and creativity.**

7 (Optional) As part of the ad campaign, have students form groups to produce an anti-drinking campaign: (1) "raps" to perform later in class or in the school cafeteria, (2) posters and table tents to display in the cafeteria, (3) T-shirts for school fundraisers, or (4) camera-ready advertisements to print in the school or community newspaper. Note: Contact the cafeteria staff for their assistance and support with the campaign.

8 Summarize the lesson. Ask:

- **How do the calories and nutrients in alcoholic and nonalcoholic beverages compare?**
- **How can drinking alcoholic beverages interfere with good nutrition?**
- **What health risks relate to drinking alcohol?**
- **How can alcohol affect a developing baby during pregnancy?**
- **How can you avoid being pressured into drinking?**
- **What guideline on alcoholic beverages makes the most health sense?** (Avoid alcoholic beverages.)

Learning More...

"Healthline." For their "Healthline" newsletter, have students create an editorial cartoon about the risks related to drinking alcoholic beverages. Have them save the cartoons for their completed "Healthline" newsletters in Lesson 9.

"Alcohol and Your Body." Have students form study teams to learn how alcohol affects parts of the body — brain, bloodstream, stomach, kidneys, liver, pancreas, or small intestine — then create a display or a class presentation on the findings.

"Say 'No' with 'I Messages.'" With peer pressure, saying "no" to alcoholic beverages may not be easy. Explain that using "I messages" often helps. The message: (1) describes the other's behavior, (2) states how that makes you feel, and (3) states why you feel that way. For example, "When you push me to drink, it really makes me angry because I don't think you respect my decision." Have students use "I messages" to respond to these situations:

- Finally...you've been asked to go to the school game with some "cool" kids. But they want to pop a few beers afterward in the park. What do you say? What do you do?
- Your friend promised to drive you home from the party. But she's been "doing" wine coolers all night. What do you say? What do you do?
- What a workout! A teammate pulls a beer out of a

gym bag and says, "Here's how a real winner cools down!" What do you say? What do you do?

"*What's on TV?*" Many movies and television programs show people with alcoholic drinks. Have students do a movie and TV survey to judge how drinking is portrayed to the public. Discuss: How are alcoholic beverages portrayed? What messages about drinking do kids see and hear? Are these messages true or misleading? How do you think these messages affect drinking behavior?

"*A Call for Help.*" Invite representatives from community agencies to discuss alcoholism, the dangers of alcohol abuse, and the ways agencies help people and families with alcohol-related problems. For example, a March of Dimes speaker might discuss fetal alcohol syndrome; an Alcoholics Anonymous representative or psychologist might explain the relationship between alcohol abuse and mental and/or family health. Ask your school nurse about other community resources.

Fitness...On the Move

Being "in shape" doesn't mean it's okay to drink alcoholic beverages. Regardless of a person's age or physical condition, alcohol affects the body. Because it doesn't need to be digested, alcohol passes into the bloodstream quickly — through the stomach and small intestine — just after being consumed. And the body only can metabolize a certain amount of alcohol in a given period of time (about 1 ounce per hour). Nothing — not exercise, cold showers, nor coffee — can make the body sober up faster.

For More Information, Contact:

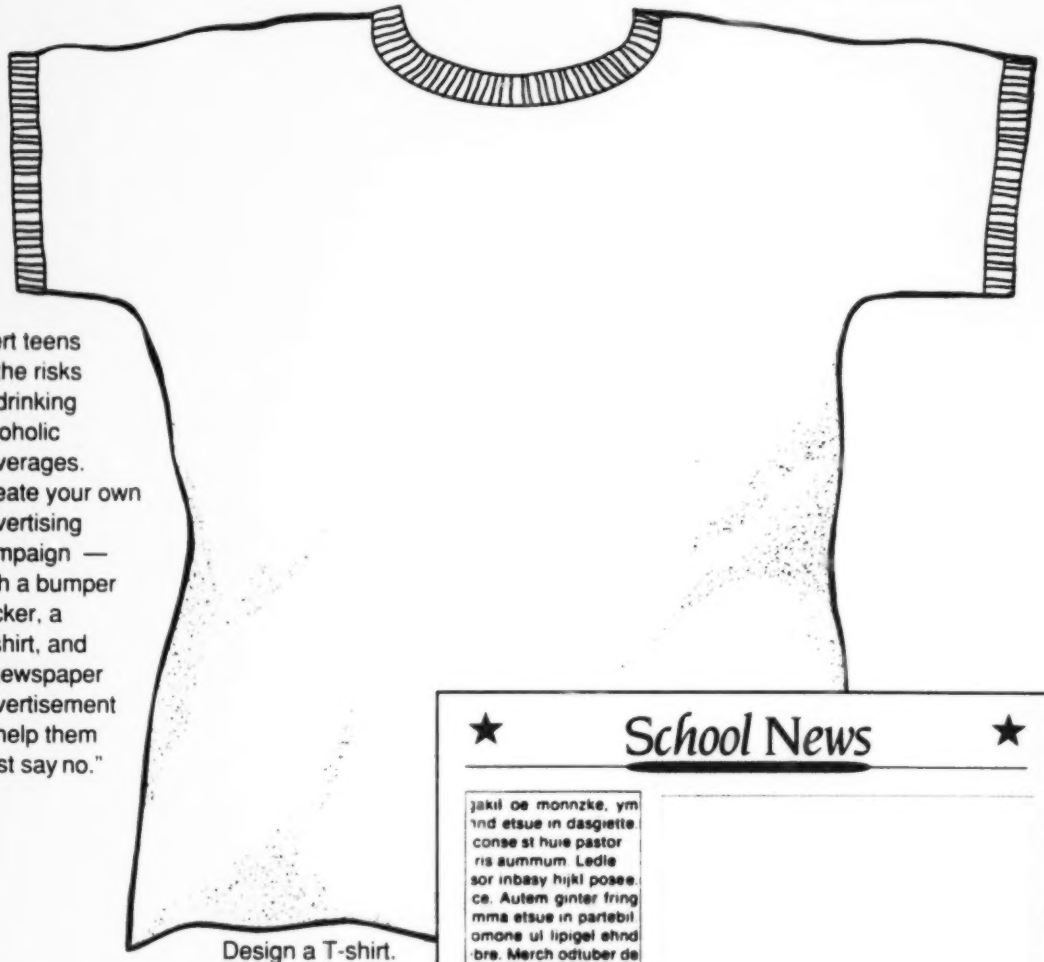
- The Just Say No Foundation, 1777 North California Boulevard, Walnut Creek, California 94596, 1-(800) 258-2766.
- The National Clearinghouse for Alcohol and Drug Information, P.O. Box 2345, Rockville, Maryland 29852.

ACTIVITY SHEET FOR LESSON 8

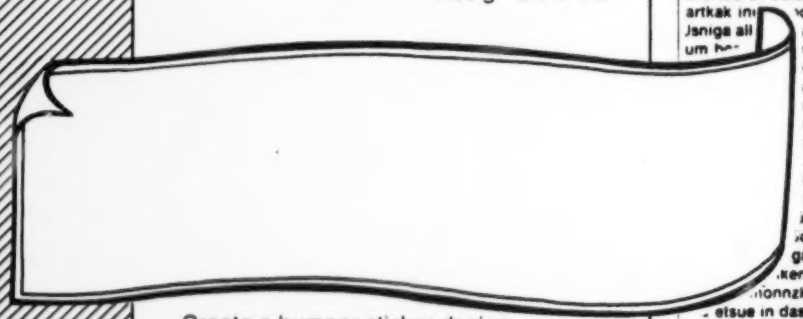
Alcoholic Drinks... An Offer You CAN Refuse!

Watch out! Drinking beer, wine, hard liquor, even wine coolers is no way to "party"! Wine coolers may seem like soft drinks since they're made with carbonated water and fruit flavoring. But like wine and beer, wine coolers also contain alcohol. Smart teens avoid alcoholic beverages, including wine coolers.

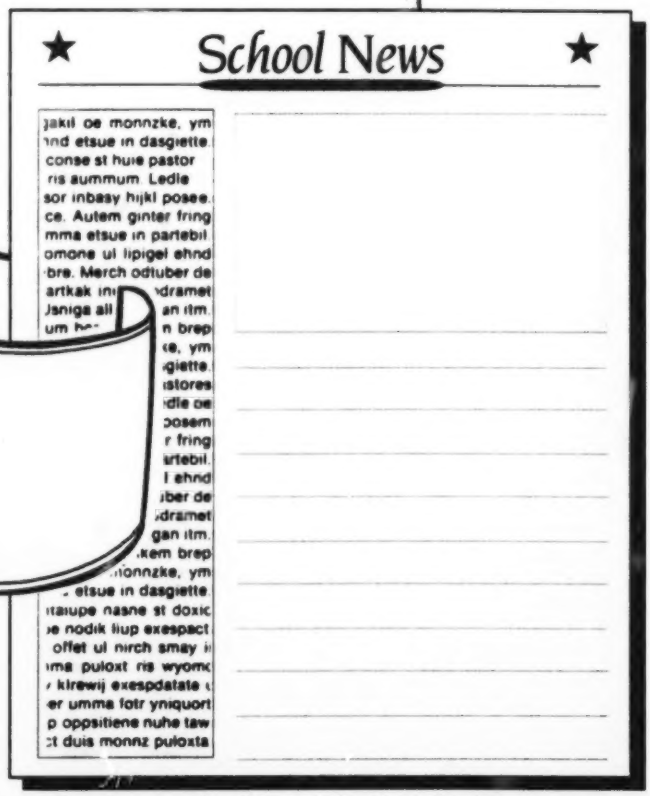
Alert teens to the risks of drinking alcoholic beverages. Create your own advertising campaign — with a bumper sticker, a T-shirt, and a newspaper advertisement to help them "just say no."



Design a T-shirt.



Create a bumper sticker design.



Develop an advertisement for the school newspaper.

Lesson 9

HealthWise Snacks... The Taste of Good Health

Summary Lesson on the Dietary Guidelines

Objectives...

After completing the lesson, students will be able to —

- describe the appropriate use of the Dietary Guidelines,
- explain the reasons for following the Dietary Guidelines,
- apply the Dietary Guidelines to a variety of food decisions, and
- plan a day's food choices that meet the Dietary Guidelines.

Key Points...

1. The Dietary Guidelines are recommendations to help healthy people, age 2 and over, maintain, and perhaps improve, their health.
2. By following the Dietary Guidelines, some people can reduce their risk of certain diseases, such as premature (before age 50) heart attacks, strokes, high blood pressure, diabetes, some forms of cancer, and dental caries.
3. Variety, moderation, and balance are qualities of a diet that meets the Dietary Guidelines.
4. The Dietary Guidelines encourage choices from a variety of foods to ensure that nutrient needs are met, and they encourage maintaining healthy weight.
5. To follow the Dietary Guidelines, people don't need to give up the foods they like. They need to balance food choices to keep calories under control and to get the nutrients they need; to choose a diet with plenty of vegetables, fruits, and grain products; to choose a diet low in fat, saturated fat, and cholesterol; to use sugars, salt, and sodium in moderation; and, as teens, to avoid alcoholic beverages.

Notes to You...

- This summary lesson helps students apply all the Dietary Guidelines by creating a new food product and a label to market that product.
- This lesson may be presented in a unit on general nutrition or consumer health, or as a summary for any instruction on the Dietary Guidelines.

Materials for Learning...

students' time capsules from Lesson 1
"HealthWise Snacks...The Taste of Good Health" activity sheet from page 54
"Food Groups: Some Foods They Contain" information sheet from page 7 of the bulletin on variety (HG 232-1)
food composition tables — multiple copies (The Nutritive Value of Foods, Home and Garden Bulletin Number 72, from the Government Printing Office, provides a comprehensive list.)

★ ★ ★

- Duplicate "HealthWise Snacks...The Taste of Good Health" and "Food Groups: Some Foods They Contain" for each student.

Lesson Plan...

Class Period 1:

1 Have students look at the time capsules they created in Lesson 1 in their review of the Dietary Guidelines. Say:

- **What do the items in your time capsules suggest about foods available to people today?**
- **What do the time capsules say about the foods you enjoy?**
- **What seven Dietary Guidelines do health experts recommend to the public?** Have students list them.
- **Why were the Guidelines written?** (To help people maintain and perhaps improve their health.)
- **By following the Dietary Guidelines some people can reduce their risk of getting certain diseases. What are these health problems?** (Obesity, premature (before age 50) heart attacks, strokes, high blood pressure, diabetes, some forms of cancer, and tooth decay.)
- **For whom are the Dietary Guidelines meant?** (Healthy Americans age 2 and over, including teenagers.)
- **Do foods and beverages represented in your time capsules fit in a diet that is planned to match the Dietary Guidelines? If so, how? If not, what might you change?**
- **Do you have to give up soft drinks, chips, fries, or**

candy to follow the Dietary Guidelines? (No. You don't need to avoid any one food, but you may need to cut back.) **Why not?** (There are no good foods or bad foods. It's the total diet that counts. Healthy food choices provide the nutrients and fiber people need with enough calories to maintain a healthy weight, but without too much fat, saturated fat, cholesterol, sugars, salt, and sodium.)

2 Have students create a new snack food — with a food label and "infomercial" (a radio or television commercial that informs rather than only advertises) – which would support one or more of the Dietary Guidelines. Divide students into small groups, with each representing the HealthWise Food Company. Distribute the activity sheet "HealthWise Snacks... The Taste of Good Health." Say:

- **Imagine that the class is the HealthWise Food Company. The company needs to create a new snack food for the teenage market. HealthWise believes that customers "enjoy HealthWise snacks for the taste of good health."** Give students a moment to read the food company memo, then discuss and clarify the instructions.
- **You've been divided into product groups within the HealthWise Company. Each group has been asked to come up with a snack idea to sell in its snack food line.**
- **You'll need to come up with a snack food that fits into a diet which meets the Dietary Guidelines.**
- **Once you have your idea, create a food label that includes the product name, company information, quantity, an ingredient list, and a nutrition label.**
- **After you've created your product and food label, create an "infomercial" about it. The message must explain how and why the product fits into a diet that meets the Dietary Guidelines...and why kids would want to eat it.**
- **An "infomercial" is like a radio or television commercial. However, it does more than encourage an audience to buy. It also provides information.** You might discuss how an "infomercial" about food could use some of the advertising techniques described in Lesson 8.
- **What qualities should you consider when you create your new snack food and develop the "infomercial"?** (The snack should belong in one or more of the five major groups; food may have one or more of these qualities — low in calories, high in starch and/or fiber, low in fat, cholesterol, sugars, salt and/or sodium; any beverage should be non-alcoholic.)
- **Use some creative artwork and a catchy product name on your food label to capture interest from teenage consumers.**

Students might use the items in their time capsules (e.g., food labels, food advertisements, newspaper or magazine articles), "Food Groups: Some Foods They Contain," and food composition tables as project references.

Give students one or more class periods to work on their food product, its labeling, and the "infomercial," or extend the activity as homework. Students will need to act out their "infomercial" for the class.

Class Period 2:

3 Review the HealthWise snacks. Invite each product group to present the snack idea, food label, and "infomercial" to the class HealthWise Food Company. Have all the "company employees" (your class) select the best idea for the company's new snack. The new snack should (1) fit into a diet that meets the Dietary Guidelines, (2) sound appealing and creative, and (3) fit into an accurate "infomercial."

4 (Optional) Students might prepare the new snack ideas in the food company's "test kitchen" (at home), then bring them in to the class for a taste test. Be sure to stress food safety if students prepare and bring food to share in class.

Learning More...

"Healthline." This is the last of nine articles/features for the students' "Healthline" newsletters. For this lesson, have each student write an editorial summing up the importance of following the Dietary Guidelines. When this assignment is completed, each student will incorporate his or her "Healthline" features from the nine lessons into one complete newsletter. Encourage students to add graphics for interest. (Optional: Duplicate and distribute the outstanding newsletters to faculty, students, parents, and other appropriate audiences.)

"Nutrition for Teens." As a review of the Dietary Guidelines and their role in fitness, have students create a dynamic brochure for teenagers. Remind students that the Dietary Guidelines, including food group guidelines, apply to both athletes and nonathletes. Well-written brochures might be duplicated and distributed throughout the school.

"Choices." For review, have students make these decisions:

- In your school lunch, you have a choice of milk — whole, 2 percent, or skim. How could you compare the nutrient value? Which would you choose, and why?
- You're on the committee which decides what snacks to sell to school athletes during after-school practice. What would you sell, and why?

- You're packing a meal to eat at an all-day track meet at another school. What would you take, and why? Be sure to consider food safety!
- You've just lost 1 pound in sweat during a workout. That pound equals about 2 cups of water. What makes a good fluid replacement, and why?

"Nutrition Olympics." Have each student write at least one test question — with answers — for each of the seven Dietary Guidelines. (For the Guideline "Eat a variety of foods," you may have them write several questions, one for each food group.) Play Nutrition Olympics by grouping the class in teams to answer randomly-chosen questions. Offer a fitness-related prize to the winning team, perhaps "gold medals" which say 'Smart Eating Makes Winners."

"Nutrition — It's All in the Words." Use word games, such as charades, anagrams, and cross-word puzzles, to review terms presented in Lessons 1 through 8, such as: calories, cancer, cholesterol, complex carbohydrate, healthy weight, diabetes, Dietary Guidelines, fat, fiber, food groups, heart attacks, high blood pressure, nutrients, obesity, saturated fat, salt, sodium, starch, sugars, tooth decay, variety, and others. Clues will be the definitions.

Fitness...On the Move

Are fitness-conscious students looking for smart after-school snacks? Each of these choices contributes different nutrients. But consider the differences in calories, fat, and sodium: (1) a plate of nachos with 12 tortilla chips and 1/4 cup cheese sauce has 175 calories, 9 grams of fat, and 470 milligrams of sodium; (2) 4 saltine crackers with 2 tablespoons of peanut butter have 250 calories, 18 grams of fat, and 310 milligrams of sodium; (3) 1/2 cup of frozen yogurt has 105 calories, 2 grams of fat, and 60 grams of sodium; and (4) a plate of raw vegetables — carrots, zucchini sticks, and cherry tomatoes — has only 30 calories, only a trace amount of fat, and 15 milligrams of sodium.

ACTIVITY SHEET FOR LESSON 9

HealthWise Snacks...The Taste of Good Health

MEMO

To: All HealthWise Employees
From: President
Re: Creative New Snack Food

HEALTHWISE FOOD COMPANY

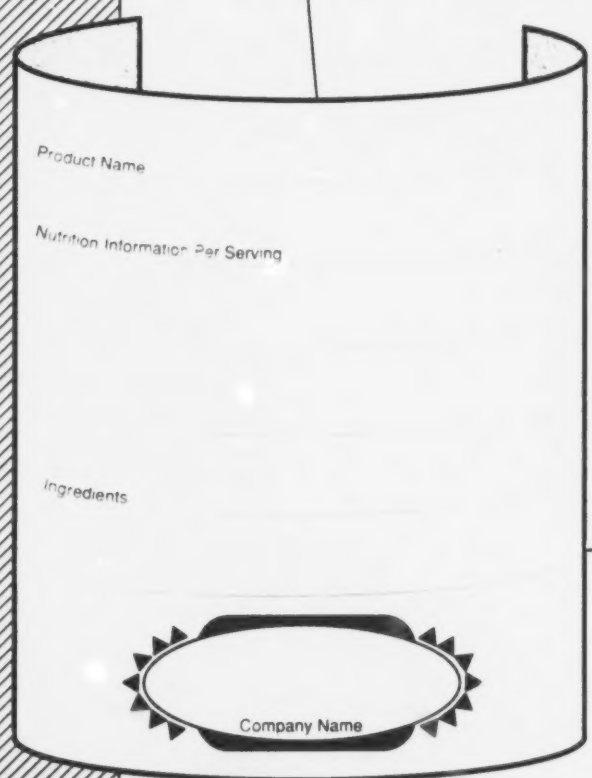
At the HealthWise Food Company, we care about customers — and their good health. For this reason, we want to add a nutritious, new snack food to our product line. Our competitors are selling many snacks — some high in sodium, sugars, and fats, and often low in fiber. HealthWise is ready to offer a new "taste of good health" — especially for teenagers!

We need the ideas of our employees to create the best new snack foods. So we've asked you to be part of a team to come up with ideas. Our new snack must have the following qualities:

- appeal to the teenage market.
- fit as a "healthwise" choice in a diet that meets the Dietary Guidelines.

Each snack idea submitted must have:

- **a product name and description...** something which "grabs" teenagers.
- **a food package...**with appropriate information on the label. You can submit your label on the form to the left. Include product name, company name and address, quantity in the package, ingredient list, and nutrition label.
- **"infomercial" for radio or television...** which informs teenagers about the nutritional value of the snack in a very creative way and tells them why they'd want to eat it!



Food label

Self-Test for Guideline 1/Lesson 2

How Does Your Diet Rate for Variety?

A varied diet is a healthful diet. How would you describe the variety in your food choices?

	Seldom or never	1 or 2 times a week	3 to 4 times a week	Almost daily
How often do you eat:				
1. At least six servings of breads, cereals, rice, crackers, pasta, or other foods made from grains (a serving is one slice of bread or a half cup cereal, rice, etc.) per day?				
2. Foods made from whole grains?				
3. Three different kinds of vegetables per day?				
4. Cooked dry beans or peas?				
5. A dark-green vegetable, such as spinach or broccoli?				
6. Two kinds of fruit or fruit juice per day?				
7. Three servings of milk, yogurt, or cheese per day?				
8. Two servings of lean meat, poultry, fish, or alternates, such as eggs, dry beans, or nuts per day?				
Count the number of check marks in each column.	___	___	___	___

To eat a varied diet, I will:

_____

_____

Self-Test for Guideline 2/Lesson 3

My Eating Habits: Some Clues to Calories?

Calories come from food — all kinds of food. Do you get enough? Or more than you need? Think about your eating patterns — and why you eat what you eat. Check all the answers that describe your eating patterns.

What do I usually eat?
__A varied and balanced diet.
__A diet with only moderate amounts of fats and sugars.
__Deep-fat-fried and breaded foods.
__"Extras," such as salad dressings, potato toppings, spreads, sauces, and gravies.
__Sweets and rich desserts, such as candies, cakes, and pies.
__Snack foods high in fat and sodium, such as chips and other "munchies."
__Soft drinks.

When do I usually eat?
__At mealtime.
__While studying.
__While preparing meals or clearing the table.
__When spending time with friends.
__While watching TV or participating in other activities.
__Anytime.

Where do I usually eat?
__At home at the kitchen or dining room table.
__In the school cafeteria.
__In fast-food places.
__In front of the TV or while studying.
__Wherever I happen to be when I'm hungry.

Why do I usually eat?
__It's time to eat.
__I'm hungry.
__Foods look tempting.
__Everyone else is eating.
__Food will get thrown away if I don't eat it.
__I'm bored or frustrated.

Changes I want to make:

1. _____
2. _____
3. _____

Self-Test for Guideline 2/Lesson 3

My Plan of ACTION

Exercise burns calories. At the same time, it helps you maintain your own healthy weight — so exercise for the "shape of things to come." Exercise also helps keep you fit, all over! The best "plan of action" includes physical activities that you enjoy and are willing to do several times a week. So make a "Fitness Contract" with yourself. And, check the activities you promise to fit into your daily life.

FITNESS CONTRACT

I agree to "put myself in motion!" As part of my daily routine, I'll include one or more of these activities in my "keep fit" action plan. I know that exercising to keep fit is a lifetime activity that includes exercising and maintaining my own healthy weight...and once I've worked up to a new level of activity, I'll stick to it!

__ Put more activity into my daily life, such as using stairs instead of elevators and walking or bicycling rather than riding in a car.

__ Take several 1-minute stretch breaks during the day.

__ Establish a regular schedule of exercise several times a week, before or after school.

__ Join a school or community sports team.

__ Take a gymnastics, aerobics, or other exercise class.

__ Set up a daily routine of walking, bicycling, or jogging.

__ Establish a regular schedule for activities such as swimming, running, bicycling, or tennis.

__ Play basketball at a court or in my own backyard.

__ Dance.

Signed:

Date:

- **For the next four weeks check up on yourself.**
- **Did you carry out your plan that week?**

- **Week 1:**

___ yes ___ no
If not, what should you change?

- **Week 2:**

___ yes ___ no
If not, what should you change?

- **Week 3:**

___ yes ___ no
If not, what should you change?

- **Week 4:**

___ yes ___ no
If not, what should you change?

Self-Test for Guideline 3/Lesson 4

What's Your Fat Score?

Do the foods you eat provide more fat than is good for you? Answer the questions below, then see how your diet stacks up.

	Seldom or never	1 or 2 times a week	3 to 5 times a week	Almost daily
How often do you eat:				
1. Fried, deep-fat-fried, or breaded foods?	☐	☐	☐	☐
2. Fatty meats such as bacon, sausage, luncheon meats, and heavily marbled steaks and roasts?	☐	☐	☐	☐
3. Whole milk, high-fat cheese, and ice cream?	☐	☐	☐	☐
4. High-fat desserts such as pies, pastries, and rich cakes?	☐	☐	☐	☐
5. Rich sauces and gravies?	☐	☐	☐	☐
6. Oily salad dressings or mayonnaise?	☐	☐	☐	☐
7. Whipped cream, table cream, sour cream, and cream cheese?	☐	☐	☐	☐
8. Butter or margarine on vegetables, dinner rolls, and toast?	☐	☐	☐	☐
9. Chips, cookies, and other high-fat snacks?	☐	☐	☐	☐
Count the number of check marks in each column.	___	___	___	___

To eat a diet low in fat, saturated fat, and cholesterol, I will: _____

Self-Test for Guideline 4/Lesson 5

What's Your Starch and Fiber Factor?

	Seldom or never	1 or 2 times a week	3 to 4 times a week	Almost daily
How often do you eat:				
1. Several servings of breads, cereals, pasta, or rice?	☐	☐	☐	☐
2. Starchy vegetables like potatoes, corn, peas, or dishes made with dry beans or peas?	☐	☐	☐	☐
3. Whole-grain breads or cereals?	☐	☐	☐	☐
4. Several servings of vegetables?	☐	☐	☐	☐
5. Whole fruit with skins and/or seeds (berries, apples, pears, etc.)?	☐	☐	☐	☐
Count the number of check marks in each column.	___	___	___	___

To eat enough starch each day, I will: _____

To eat enough fiber each day, I will: _____

Self-Test for Guideline 5/Lesson 6

Your Diet: How Sweet Is It?

Do you have a sweet tooth? Answer the questions below to see how the foods you eat affect the amount of added sugars in your diet.

How often do you:	Seldom or never	1 or 2 times a week	3 to 5 times a week	Almost daily
1. Drink sodas or other sweetened beverages, other than "diet beverages?"				
2. Eat sweet desserts and snacks, such as cakes, pies, cookies, and ice cream?				
3. Use canned or frozen fruits packed in heavy syrup or add sugars to fresh fruit?				
4. Eat candy?				
5. Spread jam, jelly, or honey on bread or rolls?				
6. Add table sugar to your cereal or eat sweetened cereals?				
Count the number of check marks in each column.	___	___	___	___

I can moderate the sugars in my diet by:

Self-Test for Guideline 6/Lesson 7

Where's the Sodium in Your Food Choices?

The foods you buy and eat, and the way you prepare them, affects the amount of sodium you eat. Look at your food choices.

How often do you:	Seldom or never	1 or 2 times a week	3 to 5 times a week	Almost daily
1. Eat cured or processed meats, such as ham, hot dogs, bacon, or cold cuts?				
2. Choose canned vegetables or frozen vegetables with sauce?				
3. Use frozen, canned, or dehydrated dinners, main dishes, or soups?				
4. Eat cheese?				
5. Eat salty snacks?				
6. Use condiments such as soy sauce, steak sauce, catsup, and mustard?				
7. Salt your food before tasting it?				
Count the check marks in each column.	___	___	___	___

To moderate the salt and sodium in my food, I will:

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Educators, We Want To Hear From You...

We hope that you have found the **Health Educator's Teaching Kit** useful as an instructional resource. After you have used the kit, please take a few minutes to answer the following questions. Your answers will help us plan and develop materials for classroom use in the future.

1. How did you learn about the **Health Educator's Teaching Kit?**

   ____ Association for the Advancement of Health Education
   ____ State, district, or county supervisor of health instruction
   ____ health teachers
   ____ publicity flyers
   ____ professional meetings
   ____ health education journals or magazines
   ____ county extension agent
   ____ other (specify) _____

2. In what courses have you used (or do you plan to use) this kit? (Check all that apply.)

Used	Plan to Use	
____	____	health
____	____	personal development
____	____	physical education
____	____	family life
____	____	other (specify) _____

3. With what grade levels have you used (or do you plan to use) this kit? (Check all that apply.)

   ____ grade 6 ____ grade 10
   ____ grade 7 ____ grade 11
   ____ grade 8 ____ grade 12
   ____ grade 9 ____ other (specify) _____

4. Check the lesson(s) in the **Health Educator's Guide** that you taught (or you plan to teach) and star those you rate most successful. Then check the lesson(s) you plan to teach again.

Taught (✓)	Taught (*)	Plan to Teach Again (✓)	
____	____	____	Lesson 1 — Overview
____	____	____	Lesson 2 — Variety
____	____	____	Lesson 3 — Weight
____	____	____	Lesson 4 — Fat, Saturated Fat, and Cholesterol
____	____	____	Lesson 5 — Vegetables, Fruits, and Grain Products
____	____	____	Lesson 6 — Sugars
____	____	____	Lesson 7 — Salt and Sodium
____	____	____	Lesson 8 — Alcoholic Beverages
____	____	____	Lesson 9 — Summary

5. How many students have you taught (will you teach) this school year using the materials in this kit?

	Females	Males
Taught:	_____	_____
Plan to Teach:	_____	_____

60

6. How would you evaluate the **Health Educator's Teaching Kit**? Check the appropriate boxes.

	Excellent	Good	Unsure	Fair	Poor
• Educator's Guide	❑	❑	❑	❑	❑
• Overview	❑	❑	❑	❑	❑
• Lessons	❑	❑	❑	❑	❑
• Activity Sheets	❑	❑	❑	❑	❑
• Self-Tests	❑	❑	❑	❑	❑
• Supplemental Activities	❑	❑	❑	❑	❑
• 7 Bulletins (HG 232 1-7)	❑	❑	❑	❑	❑
• Pamphlet (HG 232)	❑	❑	❑	❑	❑
• Leaflet	❑	❑	❑	❑	❑

7. How could the lessons in the **Health Educator's Guide** be improved? Indicate the lesson number(s) (1 through 9) before each recommendation.

   ____ more information needed to guide the lesson
   ____ more supplemental activities needed
   ____ lesson needed to be better targeted to students' abilities and interests
   ____ activity sheet graphics needed to be better targeted to students
   ____ more evaluation tools needed
   ____ other (specify) _____

8. Would you recommend the **Health Educator's Teaching Kit** to other teachers?

   _____ yes _____ maybe _____ no

   Explain: _____

9. How did you evaluate student performance?
   ____ tests
   ____ monitored activities
   ____ class discussion
   ____ one-on-one interview
   ____ activity sheets
   ____ other (specify) _____

10. What other comments do you have about the **Health Educator's Teaching Kit** and specifically the **Health Educator's Guide**?

    _____

    _____

11. Optional: Name _____
    School _____
    Address _____
    Phone _____

Clip this completed questionnaire on the dotted line. Then fold with the address on the outside, and tape. You need no postage if you mail this in the United States. Thank you for your help.

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